

P-51

Mustang

in action



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SPECIAL
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Introduction

Where do you start when speaking of the Mustang? I really don't know, so I thought I'd let some others say a few words first:

"One of the great 'miracles' of the war was the fact that the long range (Mustang) fighter escort did appear over Germany at just the saving moment."-General H.H. "Hap" Arnold

"It is my considered opinion that the P-51 played a decisive role in the airwar over Western Europe."-Major General Orvil Anderson, Deputy CO of 8th Air Force

"That's the plane I want!"-General Carl Spaatz, CO of 8th Air Force, seeing the Mustang production line.

"When I saw (Mustang) fighters escorting the bombers over Berlin, I knew the jig was up."-Hermann Goring, 4 March 1944

The P-51's design story begins in early 1940. The British Purchasing Commission (BPC) contacted North American Aviation (NAA) about the possibility of the company license-building P-40 Tomahawks for the RAF. The North American people balked at the idea and instead tried to convince the BPC that they should build an entirely new fighter of NAA's own design. Although skeptical because North American had previously produced only trainer aircraft, the BPC agreed reluctantly to view the proposal. In January 1940, 'Dutch' Kindelberger, president of North American, and Lee Atwood, vice president, proposed the construction of 320 **NA-73s**, as the new aircraft was called, for the RAF. The NA-73 was to be powered by an Allison engine, cost no more than \$40,000.00 per aircraft and be armed to BPC specifications. The proposal was accepted by the BPC in April 1940 and thus was the Mustang born.

On 24 April 1940, the general arrangement drawings, hastily sketched in a New York hotel during the previous three weeks, were approved by the BPC, and a month later the

Vance Breese and the NA-73X in flight over Los Angeles. Note the rounded racing-style windscreen and short carburetor scoop. (NAA)

The Mustang design team, left to right, are Louis Wait, Ray Rice and Edgar Schmued. (NAA)



US government released the NA-73 for sale to the British. At this point, the US Army Air Corps had no interest in the aircraft.

The NA-73 design team was a small but highly skilled group led by Ray Rice, NAA Chief Engineer, and Edgar Schmued, Chief of Design. Using ideas gleaned from a trip 'Dutch' Kindeberger had made to Heinkel and Messerschmitt in 1938, plus details of P-40 research purchased from Curtis and NACA studies on laminar flow wing design, the North American team went to work. The Mustang design proved successful due to four major features; the overall aerodynamic cleanliness of the design, the laminar flow wing, the location and design of the radiator scoop and the later adoption of the potent Packard-built Merlin engine. The clean design is apparent to anyone viewing the Mustang. The laminar flow wing was based on NACA studies and wind tunnel tests at Cal Tech Laboratory. Laminar flow means a wing with similar curvature on upper and lower surfaces, thin at the leading edge with the thickest section moved far aft. A wing of this design delays the onset of boundary layer turbulence, greatly reducing drag. The design and location of the radiator air scoop, low and as far aft of the wing as possible, was created by Atwood, Schmued and Ed Horkey. They calculated that a duct at the entrance, and another exit duct behind the radiator, might provide some ram air effect similar to a ramjet, thus reducing the drag of the open airscoop. When initial tests of the NA-73X were finished, the engineers found that not only had they cut drag to zero but, with the ramjet effect from the expulsion of hot air behind the radiator, there was actually a slight gain in performance.

78,000 engineering hours and 127 days after the metal was cut, the NA-73X was rolled out of the North American factory at Mines Field in Los Angeles, 9 September 1940. The prototype had no engine and rolled on wheels borrowed from a Texan trainer but, it did have a name, due to the British practice of assigning names rather than sequence numbers to aircraft. The name — **MUSTANG!** Twenty days later the first Allison V-1710 engine arrived and was installed in the NA-73X. The V-1710 was a 1710 cubic inch, inline 12 cylinder, liquid-cooled engine. With its single-speed, single-stage supercharger, the V-1710-39 developed 1120hp at 3000rpm. On 11 October the V-1710 roared to life for the first time. The next two weeks were spent in engine and taxi tests. By 26 October 1940, ground testing was over and Vance Breese taxied the NA-73X to the end of the active runway. Checking that all his systems were in the green, Breese eased the throttle forward and released the brakes. NA-73X lifted easily off the runway. Five minutes later Breese landed. The NA-73X Mustang had flown and done so beautifully.

Testing continued until 20 November 1940, the ninth flight of the NA-73X. Paul Balfour was at the controls when, without warning, the big Allison stopped suddenly in mid-air. Balfour attempted a gear down landing in a newly plowed field but, predictably, the aircraft flipped over onto its back. Balfour was unhurt but the NA-73X was not flyable again until 11 January 1941. No mechanical problem had been encountered before the crash. Later investigations showed it had simply run out of gas! The NA-73X completed a total of 45 flights before being retired on 15 July 1941.

North American's chief test pilot Vance Breese (hands behind back) chats with engineers prior to NA-73X first flight. (NAA)



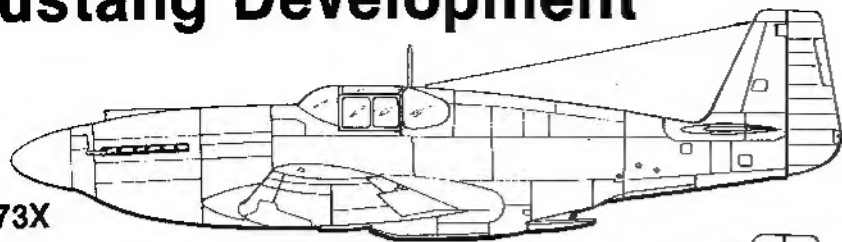
Louis Walt inspects the 1/4-scale wooden P-51 model in the wind tunnel at Cal Tech. (NAA)

Testing the amount of stress the NA-73X wing could handle. Note the lead weights and sandbags on the leading edge and the water bucket attached to aileron. (NAA)

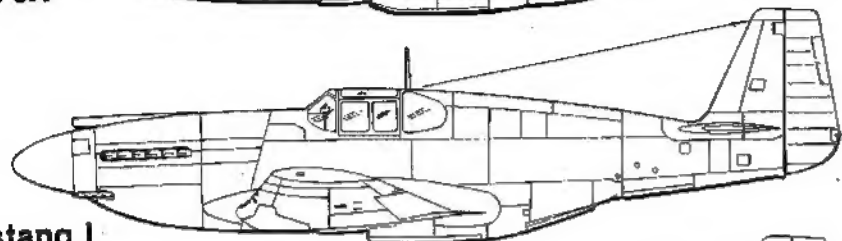


Mustang Development

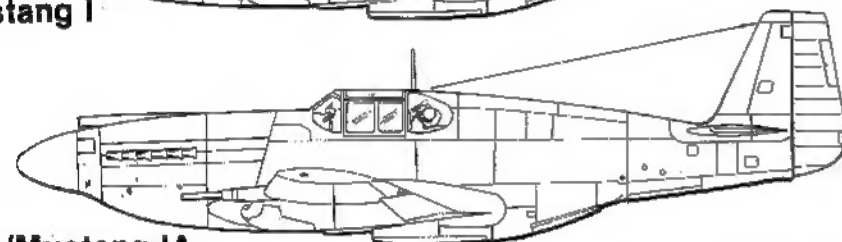
NA-73X



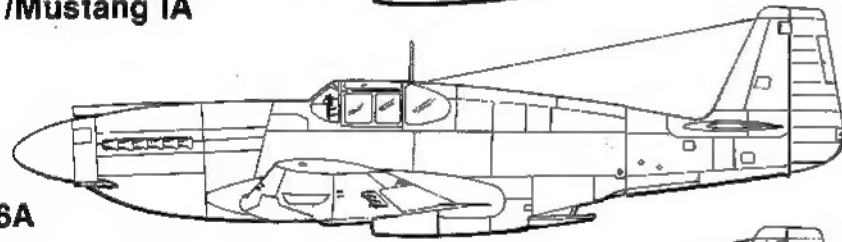
Mustang I



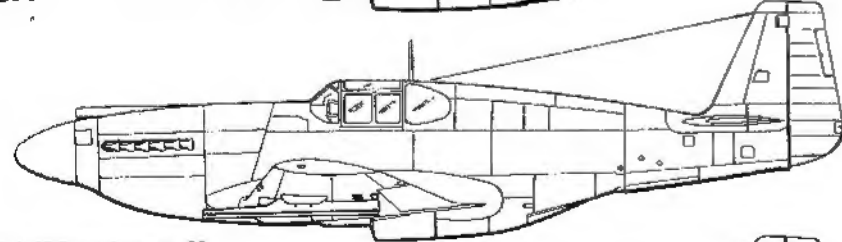
P-51/Mustang IA



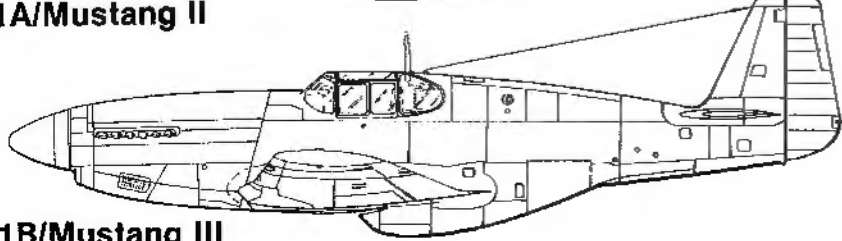
A-36A



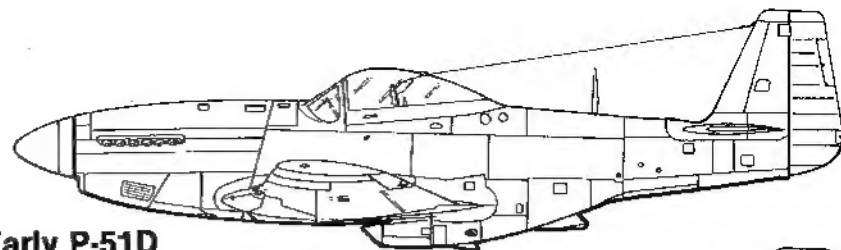
P-51A/Mustang II



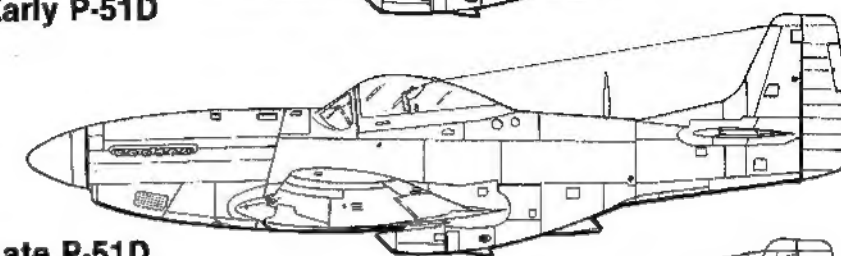
P-51B/Mustang III



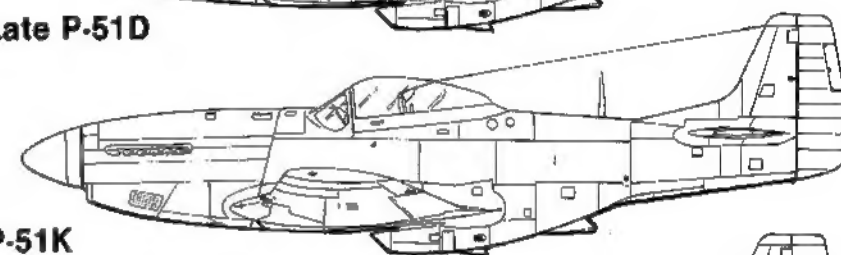
Early P-51D



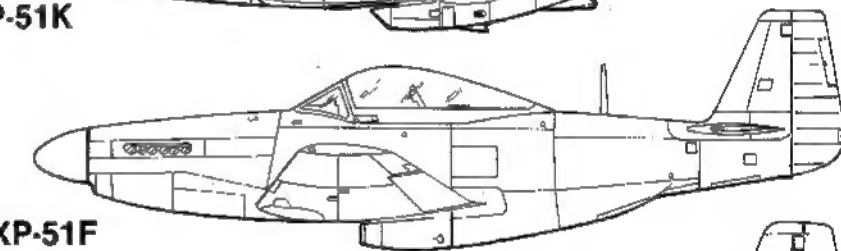
Late P-51D



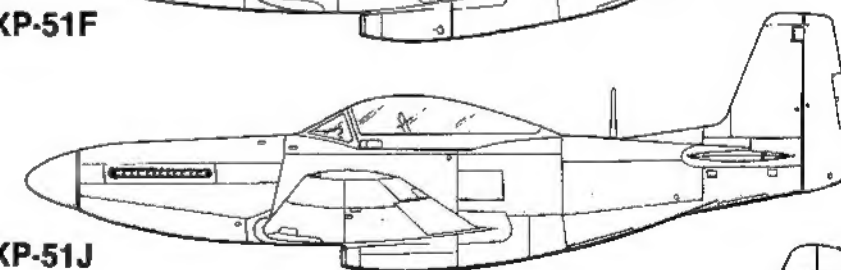
P-51K



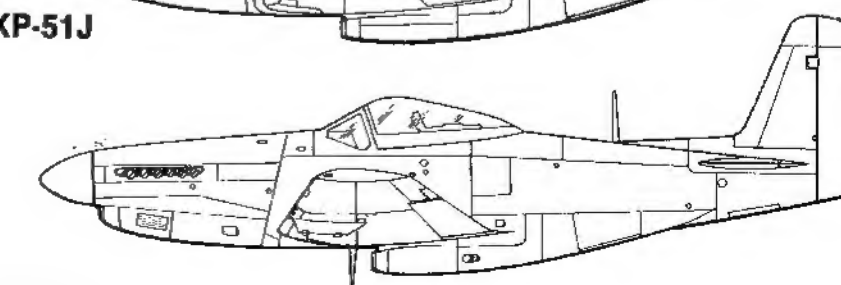
XP-51F



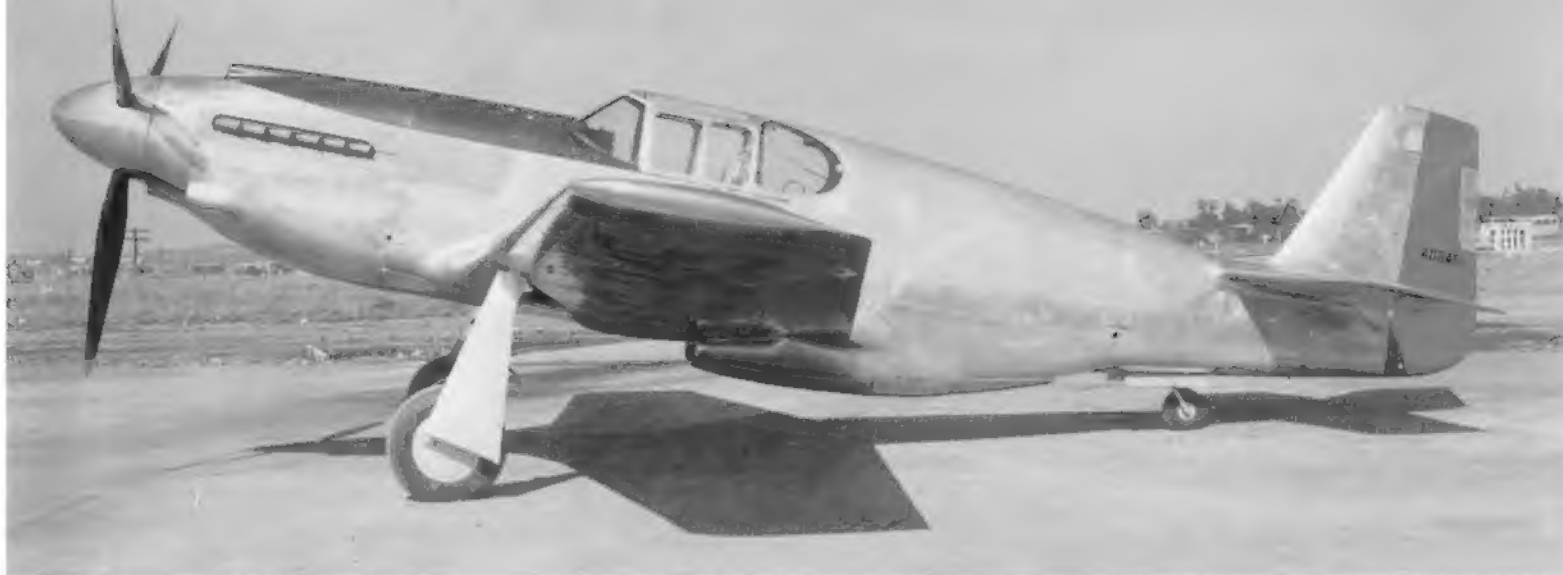
XP-51J



P-51H



AG345, the first Mustang I, on the ramp at Mines Field. Note the empty gun bulges on the nose and new flat windscreen, but still retaining the short carburetor scoop. (NAA)



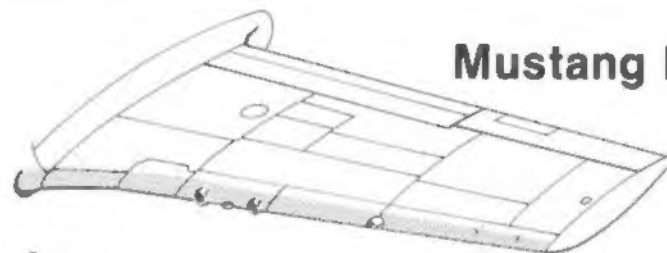
P-51/Mustang I & IA

The first **Mustang I** was almost an exact copy of the NA-73X. AG345, the first production machine, rolled out on 16 April 1941, seven days later it flew for the first time. Before the fourth Mustang I had left the production line, several changes were made to the basic design. The radiator air scoop was somewhat enlarged for better airflow into the radiator and the carburetor air scoop atop the nose was extended forward until it was even with the spinner. A problem with aileron control was cured through the use of 'booster tabs'. Finally, the rounded racing-style windscreen was replaced with a three-piece unit with the center piece being of bulletproof glass.

In September 1941 the second Mustang I, AG346, was crated up and shipped by boat to England. What was to be the first combat for a Mustang took place when the ship was bombed in the North Atlantic. Its first combat and it couldn't even fight back! The Mustang arrived at RAF Burtonwood on 24 October and was assembled by the end of the month. AG346 received a British radio and its full complement of weapons which included four .30 calibre machine guns in the wings, two .50s in the wings and an additional pair of .50s in the nose. Flight tests revealed that the Mustang I was everything the North American engineers promised it to be. It flew an honest 382mph at 14,000 ft, down from the 390mph of AG345, which was attributed to the use of camouflage paint. The only shortcoming, and one which would prevent its acceptance as a true fighter, was its lack of a service ceiling above 30,000 ft.

The British were enthusiastic about its use in ground attack and photo recon work. For the recon mission, two cameras were mounted — one immediately aft of the pilot on the left side and another mounted just aft of the radiator. No. 2 Squadron at Sawbridgeworth became the first operational unit in April 1942. On 10 May 1942, the first mission was flown over occupied France when No. 2 Squadron raided a German airfield just across the Channel. On 27 July 1942, No. 2 Squadron Mustangs did something that no other fighter aircraft could then do. They took off from an English airfield and flew straight into Germany to raid targets in the Ruhr area. It was the first time any Allied fighter aircraft had crossed the German border. During the disastrous raid on Dieppe on 19 August 1942, the Mustang drew its first blood, Pilot Officer Hollis Hills, of Pasadena, California, shot down an Fw 190 for the first Mustang 'kill'. On this same date the first Mustang was lost.

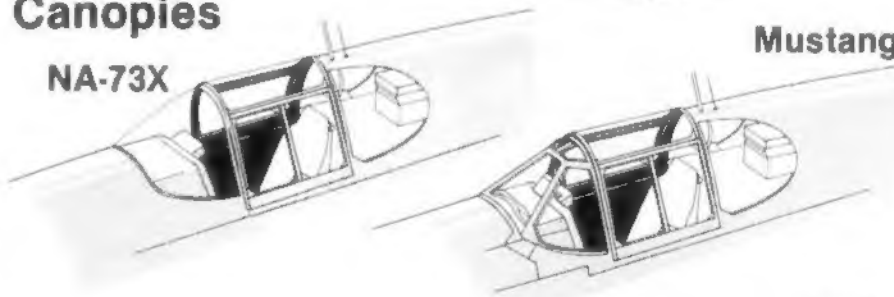
Mustang I Wing



Canopies

NA-73X

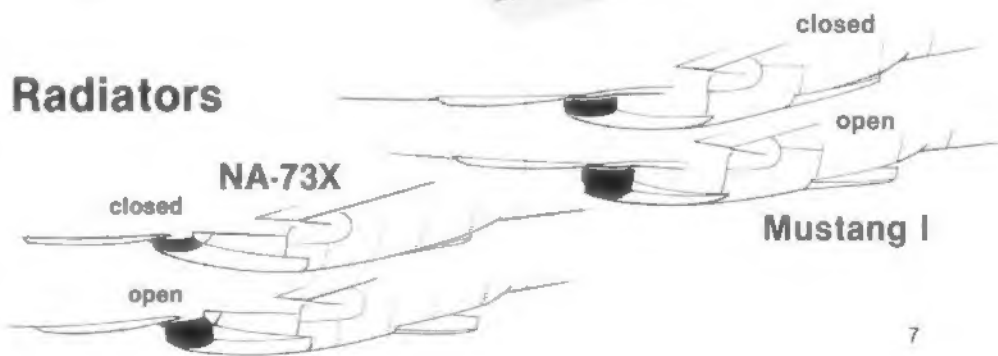
Mustang I



Radiators

NA-73X

Mustang I



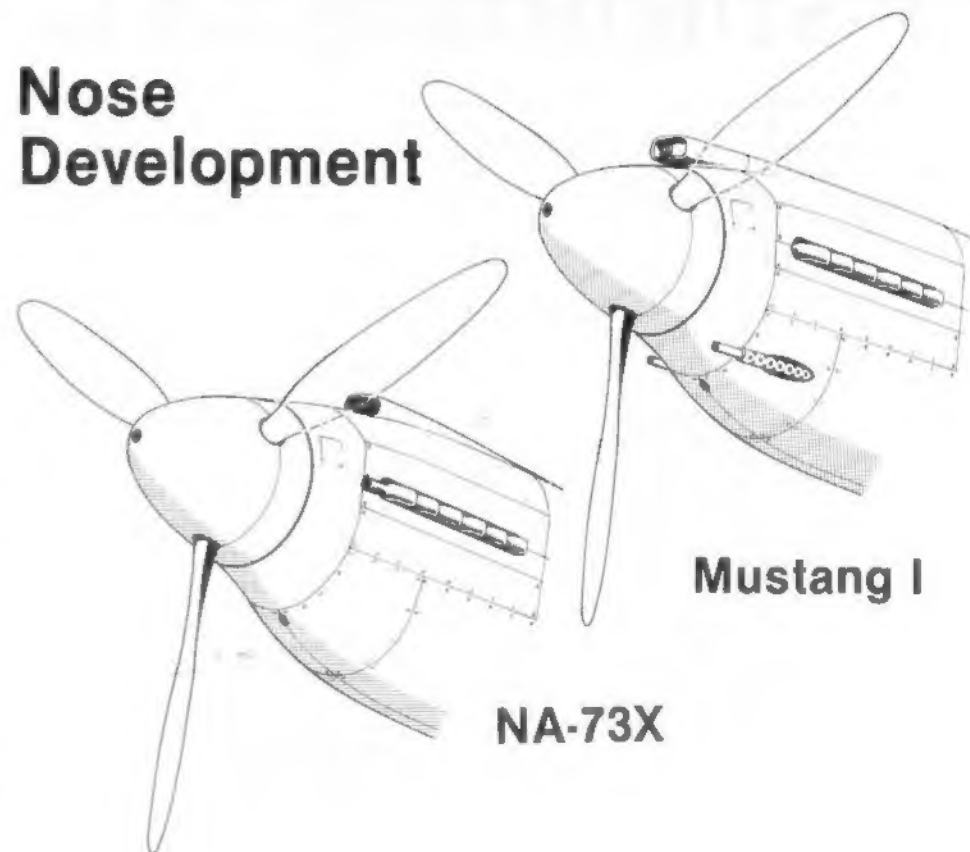


(Above) AG345, now in British camouflage of Dark Green and Dark Earth with Sky underside. AG345 was retained by North American throughout its life and used for test purposes. (NAA)

(Above Right) A Mustang I from No. 26 Squadron. The British liked the aircraft but realized its weaknesses, using it almost exclusively in low altitude roles such as ground support or photo recon. (Scutts via Ward)

AG346, the second Mustang I prototype, was disassembled, crated and shipped by convoy to Great Britain for evaluation. (NAA)

Nose Development



Mustang I

NA-73X

A brand new Mustang I is backed into its revetment in Great Britain. Note the staggered positions of the wing guns, the center guns being .50 calibre while the upper guns are .30 calibre. (NAA)



The fourth and tenth production Mustang I's were taken over by the USAAC which belatedly began to show an interest in the design. Designated XP-51s and given serial numbers 41-038 and 41-039, they were delivered to Wright Field, Ohio, and promptly placed in storage. No one there was terribly interested in an RAF hand-me-down. Only after a joint RAF-USN request for flight testing of a new pneumatic gun charger, was 41-038 dragged out for use as the testbed. At Eglin Field in late 1941, the USAAC finally found out what the RAF already knew. Test pilots came back talking only of the hot, new fighter. The gun charger was almost forgotten in the excitement.

The USAAC suddenly found itself very much interested in this fighter and, to its surprise, it found that it had ordered 150 of them, under the designation P-51 Apache, in July 1941. The aircraft had been ordered under USAAC contract as part of the recently enacted Lend-Lease program. They were modified Mustang I's, given two 20mm cannons in each wing in the place of all previous armament and having the deflector flap in front the radiator scoop deleted. Designated Mustang IA, 93 of the original order were delivered to the RAF, two were retained by North American and 55 were taken over by the USAAF (the successor to USAAC). It was one of the Mustang IAs that now Flt. Lt. Hollis Hills flew while becoming the first Mustang 'ace' on 11 June 1943. The 55 P-51s were fitted with recon cameras and assigned to units operating in the Mediterranean Theater. This Mustang was officially dubbed F-6A, although it was known only as P-51 by the units that used it. The camera fitting was in the cockpit behind the pilot's head, enclosed in special, bulged cockpit rear windows. The cameras were often removed and the bulged panels replaced by flat.

The first mission over enemy territory by a USAAF P-51 was on 9 April 1943 when Lt. Alfred Schwab of the 154th Observation Squadron at Sbeitla, Tunisia, flew a successful recon mission over Kairouan airfield. The RAF's No. 225 Squadron repeatedly borrowed two P-51s from the 68th Observation Group for use on very long range recon missions, which were outside the range of their Spitfires. The first P-51 loss occurred on 23 April 1943 when a 154th OS Mustang was shot down by 'friendly' anti-aircraft fire. This pointed up the fact that the P-51 looked very much like a Bf 109, sometimes with fatal results. Most of these P-51s soldiered on until well after D-Day, eventually being phased out in favor of the Merlin-powered F-6C and D.



(Above) Right side of a Mustang I cockpit showing the British-style circular handgrip on the control column. (NAA)

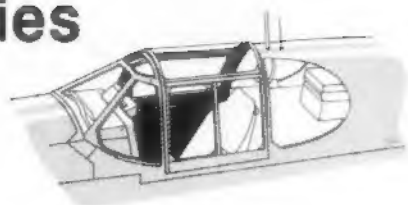


(Left) The first XP-51, s/n41-038, carrying the 'US Army' underwing lettering but retaining the British armament. (NAA)

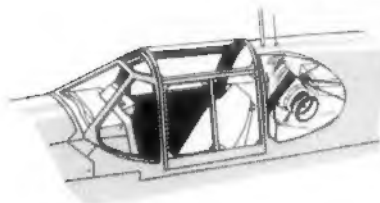


(Right) The XP-51 cockpit was identical to the Mustang I except for the use of the American style control column. Basic cockpit color is chromate green, the seat is natural aluminum. Note N-2A gunsight. (NAA)

Canopies

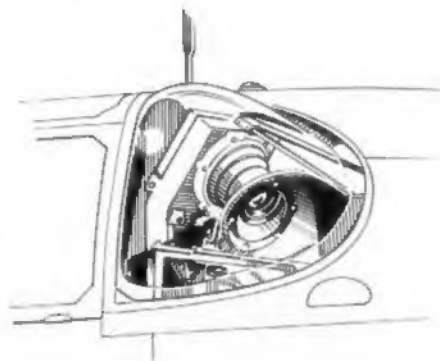


Mustang I



P-51 (F-6A)

P-51 (F-6A)
Camera Detail



K-24 camera installation in a production P-51. Note the bulged side window. A second K-24 shot straight down just aft of the radiator. This photo shows the radiator flaps full open. (AFM)

Black and white disruptive paint scheme was applied to this P-51 for visual sighting tests. The upper surfaces retained the original Olive Drab scheme, while the entire underside was done in angular stripes. (USAF)



Betty Jean on the beachhead at Anzio in April 1944. Note the remnant of a flag decal on the rudder. The serial is repeated on the tail in small black numbers because the last two digits of the original serial were covered up when bars were added to the fuselage roundel. The use of barrels and sandbags for a revetment is interesting. (USAF)





P-51 in the snow of Alaska in 1943. Note the hinged front and rear radiator scoops. (AAF)

P-51 of the 11th TacReconSq, The Snoopers, seen in Italy in 1944. Note the 'eyeball' mission markers. (Garrett)

Wings

P-51/Mustang IA

Mustang I

Nose Development

Mustang I

P-51/Mustang IA



A-36

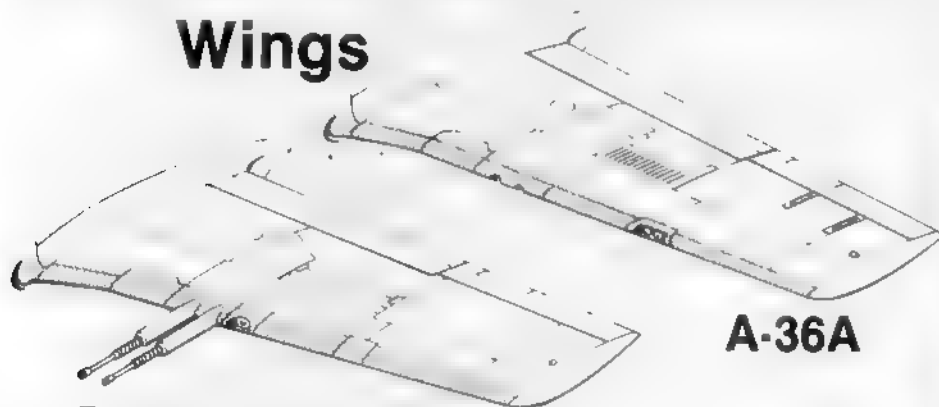
The **A-36 Apache** was a US Army Air Force's derivative of the Mustang I, ordered in response to the Luftwaffe's Ju 87 Stuka. The A-36 answered the Army's need for a high-speed dive bomber to support its ground troops. One major difference between the Stuka and the A-36 was the latter's great speed. However, this high speed, great for the fighter and recon role, was counter-productive to dive-bombing accuracy. To slow down the great dive speeds of the A-36, over 500mph in a vertical dive from 14,000 ft, a set of lattice-like aluminum brake panels were installed in the top and bottom of the wings. With the brakes deployed prior to 'peel off', dive speed was limited to 390mph. The A-36 introduced a new radiator inlet of similar design but without the adjustable flap. Another change incorporated in the A-36 was a return to machine gun armament — four 50s in the wing and two more in the nose. Bomb shackles were installed under the wing but not at the normal drop tank station. Instead they were moved closer to the main landing gear strut to minimize structural float under taxi and take-off conditions. A vent was added to the forward canopy panels. Additionally, the new Allison V-1710-87 was installed for even better low level performance. The -87 developed 1325hp at 3,000 ft but power dropped off rapidly

above 12,000 ft. The US Army Air Corps bought 500 A-36s. (The name 'Apache' was North American's invention. A-36s received no official name in US service. 'Apache' is used by aviation historians to distinguish the A-36 from P-51s, all of which were always referred to as 'Mustangs' by the USAAF.)

In April 1943, A-36s went to war with the 27th Fighter Bomber Group at Rasel Ma, French Morocco. The first mission was flown on 6 June 1943 as part of the aerial assault on the island of Pantelleria. The island surrendered and by 20 June A-36s were already using its airfields for operations against Axis forces on Sicily. Both the 27th and 86th FBG were now equipped with A-36s, flying over 1000 sorties in the 35 days after the Apache's introduction to combat. Due to its outstanding performance in the Sicily and early Italian campaigns, an effort was made to change the name of the A-36 to 'Invader'. The name never stuck as reporters kept referring to the aircraft as 'Mustangs', adding to the confusion.

One other unit operated the A-36 in combat — the 311th FBG in India. The 311th went into combat in the fall of 1943 in defense of the Ledo Road in Burma. In the fighter-bomber role, the A-36 proved second to none. A-36s flew 23,373 combat sorties delivering over 8,000 tons of bombs on enemy targets in the Far East and Mediterranean areas. They accounted for 84 enemy aircraft shot down, with a further 17 shot up on the ground. A total of 177 A-36s were lost to all types of enemy action, air and ground. Not a bad record for a low-level fighter-bomber aircraft!

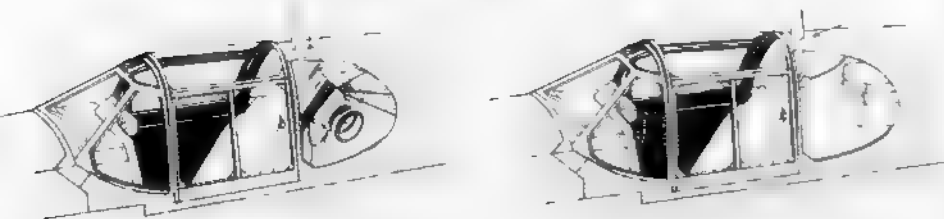
Wings



P-51/Mustang IA

A-36A

Canopies



P-51/Mustang IA

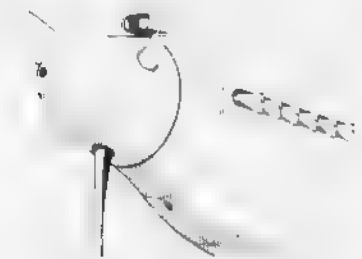
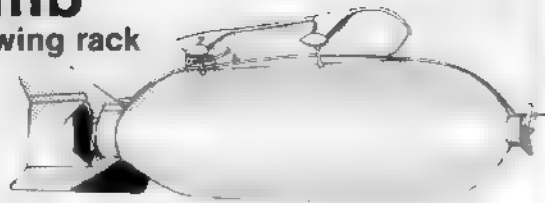
A-36A

Helga's Droppin', an A-36A, s/n42-83830, taxis in at Tafaraoui, Algeria. This Apache from the 86th FBG, has had its pair of .50 calibre machine guns removed from the nose. The wing band is a recognition mark. (Esposito)

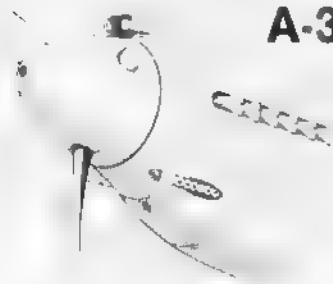


500 lb. Bomb
on early-style underwing rack

Nose Development



P-51/Mustang IA



A-36A



Another A-36A is seen in flight over Mt. Vesuvius in Italy. Note the use of yellow ID stripes to help gunners distinguish it from a Messerschmitt. (USAF)

A lineup of 27th FBG A-36As in Italy, 1944. Note how the mission symbols run the length of the fuselage on the second aircraft. (NAA)

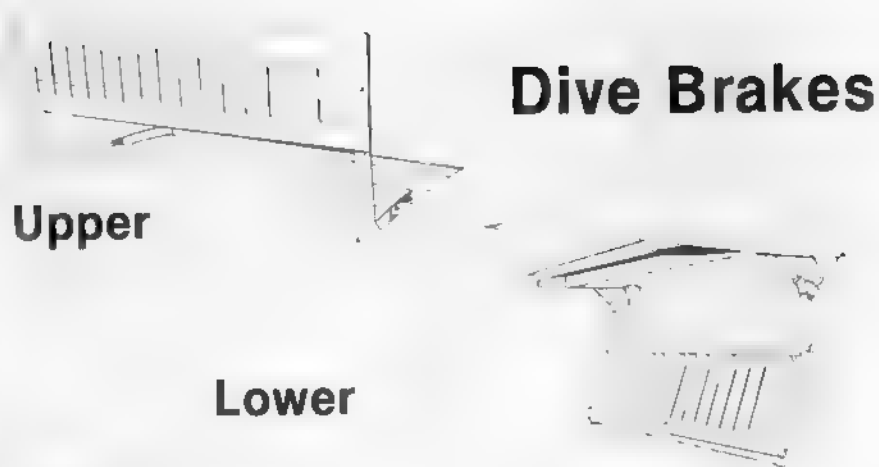




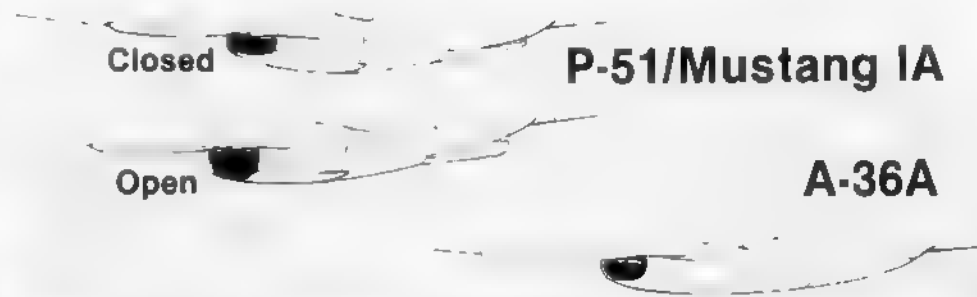
A red-nosed 27th FBG A-36A with 150 missions to its credit. A new blue surround seems to have been recently applied to the national insignia. The aircraft letter 'A' has been applied directly over the serial number. (USAF)

"Dot", an A-36A from the 86th FBG, on the grassy ramp area at Gela, Sicily in 1943. Note the extended dive brakes. She has 21 bomb mission markers as well as 10 tick marks following an umbrella indicating escort missions. (AFM)

The only surviving A-36A in the world has been completely restored to her wartime markings and now rests in the Air Force Museum in Dayton, Ohio. (NAA)

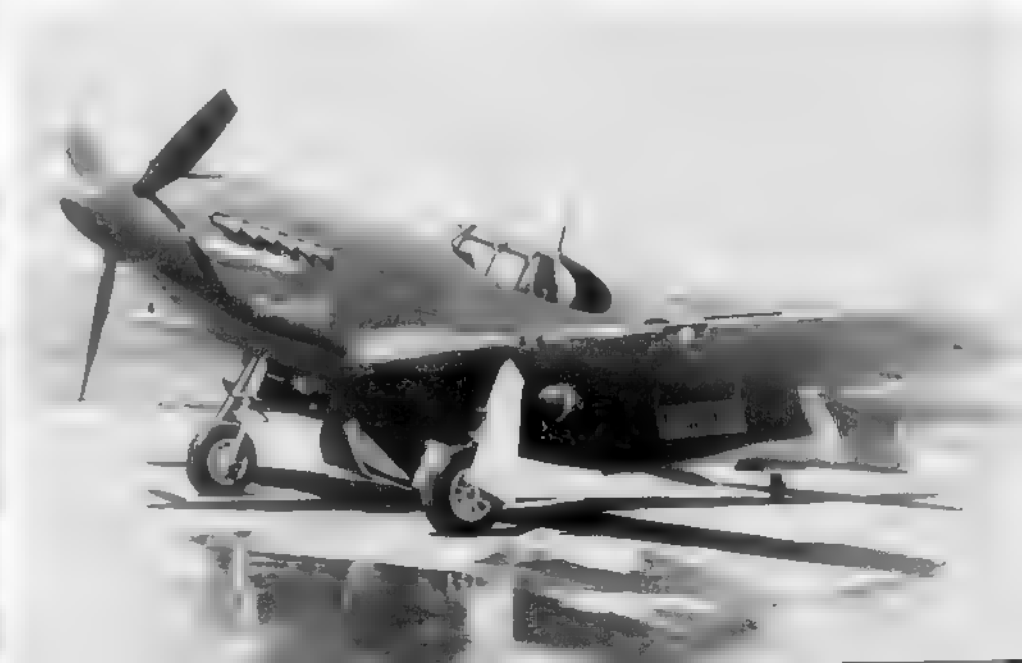


Radiators



P-51/Mustang IA

A-36A



P-51A/Mustang II

The P-51A/Mustang II was derived from the original RAF Mustang I. Armament was similar to the Apache's, four .50 calibre machine guns in the wings, the nose guns being deleted. The Apache radiator was also retained. The new aircraft used the uprated Allison V-1710-81 engine which had a much more efficient supercharger. Horsepower was up to 1330. This, combined with a new, larger Curtis 10'9" prop produced a top speed of 409mph at 10,000ft. Rate of climb rose to 3800 ft/min with an absolute ceiling of 34,000 ft. This was still not great enough for a true fighter mission, as both the Spitfire and Messerschmitt could fly and fight above that altitude. New 150 gallon drop tanks, coupled with the more efficient -81 engine, led to an increase in the ferry range, now up to 2700 miles. The 'long legs' of the Mustang had been developed!

Production aircraft reached the first fighting unit, the 311th FBG in India, in mid-1943. The 311th was equipped with A-36As so introduction of the P-51A caused no maintenance problems. Eventually the 311th equipped two of its three squadrons with the P-51A, retaining one A-36A squadron. Fifty production P-51As were sent to the RAF to replace their aging Mustang Is. The British promptly designated the P-51A as the Mustang II. Thirty-five of these aircraft were fitted with two K-24 cameras and designated F-6B.

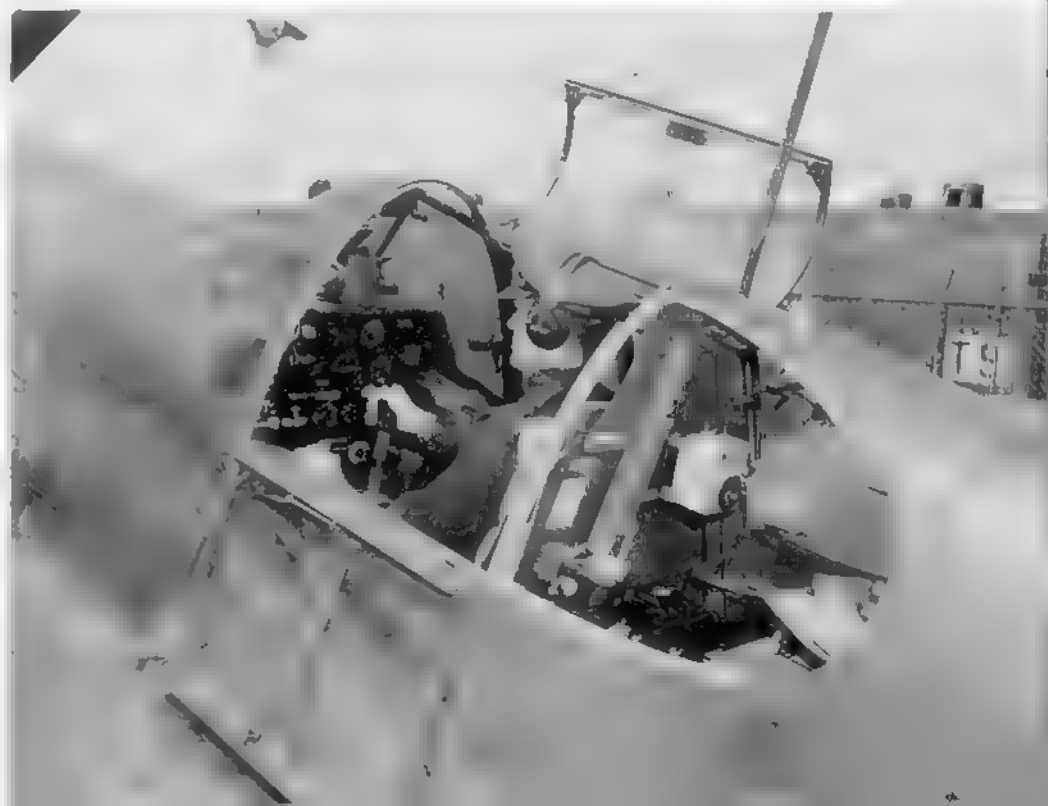
In September 1943, the 23rd FG, formed with a nucleus of the old 'Flying Tigers', started phasing out their P-40Es in favor of the new P-51A. Unlike the 311th FBG, the 23rd would use their P-51As in typical fighter missions. Their first sortie was on Thanksgiving Day 1943 when the 23rd sent eight P-38s and eight P-51As to escort fourteen B-25s raiding Formosa. There would be many similar missions for Mustang pilots in all theaters over the next two years.

The P-51A was the last P-51 to use the Allison engine. The Allison, however, would return in the P-82E Twin Mustang. North American Aviation produced 1570 Allison-powered Mustangs of all variants. Britain received 764 aircraft, either by outright sale or Lend-Lease, with a further ten aircraft going to the Soviet Union for trial tests. All the others went to US Army Air Force for use either on the fighting front or as Mustang trainers. Allison-powered Mustangs served on all fronts in a variety of roles. Unit commanders were constantly clamoring for more of the new fighters. Pilots and ground crewmen praised the Mustang for its high performance and reliability. Little did they know that one more modification would lead to a remarkable increase in the performance of the aircraft they had come to know and love.



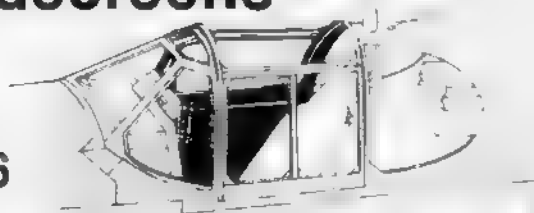
"Slick Chick" was the second P-51A off the production line. Her gunports have been faired over for more speed in testing. (AAF)

Cockpit details of a P-51A. Note the modified vent window cut into the left front windshield glass. The radio gear is missing from behind the armor plated seatback. (NAA)

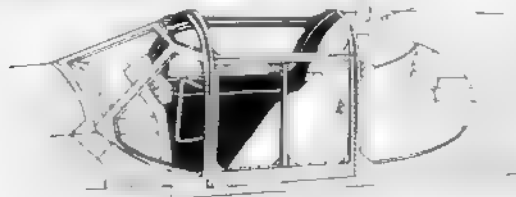


Windscreens

A-36



P-51A



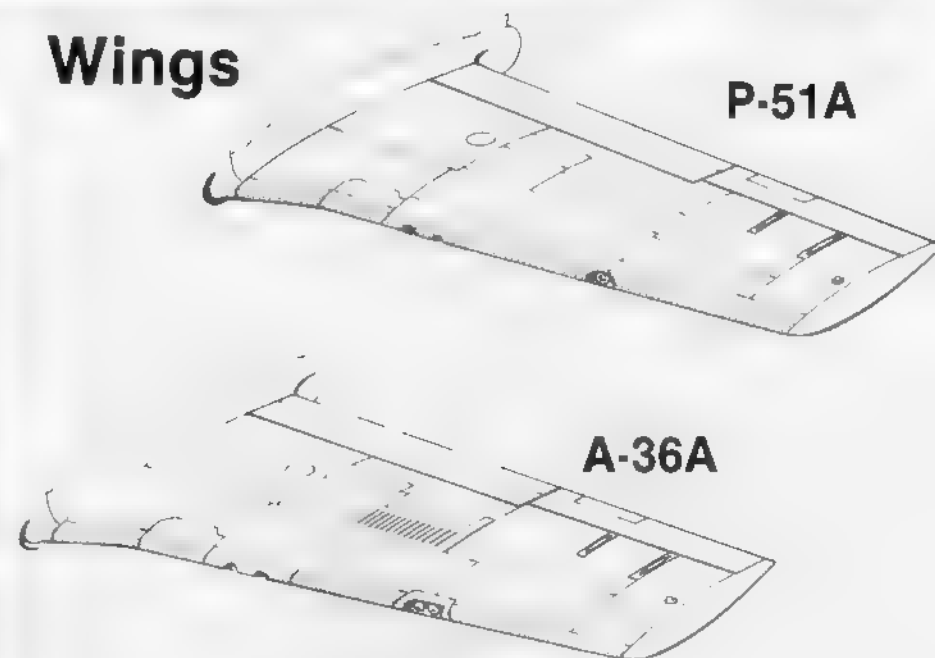


Note the extreme exhaust staining of "Mrs. Virginia" belonging to the 1st Air Commando Group of Hailakanda, India, having her wing fuel tanks filled. (USAF)

Left wing gunbay of a P-51A showing the side-mounted guns. (NAA)



Wings



This P-51A from the 311th FBG is configured for an escort mission with 75 gallon drop tank under each wing. The 311th P-51As flew many escort missions to targets deep inside China or Formosa. (USAF)





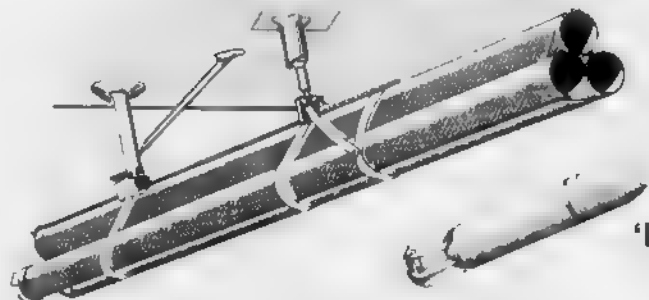
Col. Philip Cockran, CO of the 1st ACG, in flight over Burma in 1944. Note the number '1' and three white stripes on the tail indicating the Group CO's aircraft. Spinner, fin tip and stabilizer tips are natural metal.

The 1st Air Commando Group is lined up and being readied for another mission. The five white fuselage stripes were the unit ID marking. (USAF)



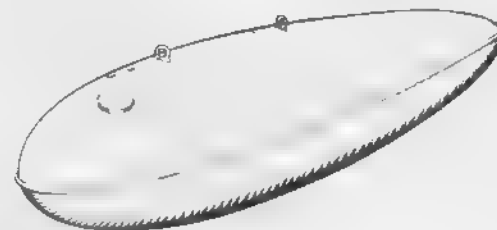
'Bazooka' Rocket Tubes

(4.5" Aircraft Rocket Launcher M10)



'Bazooka' Rocket
(4.5" Rocket M8)

75 Gallon Drop Tank





Capt. J.J. England and his P-51A, Jackie. This aircraft was paid for by employees of the Universal Engineering Co. in Michigan. At this time, Capt. England had eight victories over Japanese. (England, USAF)



Fully armed with 'Bazookas' and 500 lb. bombs, a 311th FBG P-51A waits on the ramp at Dinjln, India, for the next mission. (USAF)



P-51B/Mustang III

The idea of a marriage of the P-51 airframe and the Rolls Royce Merlin engine began long before anyone had ever heard of a Mustang. And, contrary to popular belief, this was not exclusively a British idea. Why the Merlin? The answer to that question is simple — expediency! The Rolls Royce Merlin engine was a proven design and available at the time. It was already powering some of the world's best warplanes — the Hurricane, Avro Lancaster and, of course, the superb Supermarine Spitfire. To develop a new engine for the P-51 comparable to the Merlin required time, time the Allies simply did not have. Remember this was mid-1942 and the US was still reeling from the Pearl Harbor attack, Great Britain was still standing alone opposite an entirely hostile continent and Soviet Russia was still retreating before the Nazi Blitzkrieg. The Allies needed weapons to fight the tide of defeat and they needed them right away. One of those weapons would be the Merlin-powered Mustang.

The Rolls Royce Merlin engine had begun development in 1925. That was the year that Rolls Royce produced the first aluminum engine block. Previous engines had had jacketed cylinder liners. It got its power from a (then) radical overhead valve, four valves per cylinder head. With supercharging, the *Kestrel* V-12 (Rolls Royce had a habit of naming their engines after birds) developed 690hp at 11,000ft altitude and 745hp at 14,500ft.

The basic Kestrel design evolved into the *Buzzard* which produced 955hp. This engine, with the addition of a two-sided impeller in the blower, developed a fantastic 1900hp at 2900rpm. It was called the *R* engine. This was the engine that powered the Supermarine S-6 racing seaplane to a top speed of 357mph in the 1929 Schneider Cup Race — a new World's Speed Record. Further development, mainly in the supercharger, led to 2530hp and 407.5mph! Remember, this is in 1929 and the aircraft was not a sleek fighter plane, but one with huge floats hanging from the wings. The engine could turn 1000rpm faster than other designs and do it at 100psi more torque pressure.

The Rolls Royce *Merlin*, named after a small European falcon (not the legendary wizard), began tests in October 1933. The engine incorporated all the latest advances, such as 4:1 boost ratio in the supercharger and the first use of fuel injected directly into the blower. In September 1940, Packard Motor Car Company began license production of the Merlin engine at a Detroit facility. It was known as the Merlin 28 in Great Britain or V-1650 in US Army terminology. Packard-built Merlins were the first to have engine main bearings of a silver/lead alloy. In-take and exhaust valves were coated with an 80% nickel 20% chromium alloy for much greater heat resistance. These two items made for longer engine life. A new Wright-designed supercharger drive put the finishing touches on the Packard/Merlin V-1650-3, the powerplant destined for the P-51.

The supercharger design was the real key to the Merlin performance. A two-speed/two-stage design with tolerances measured in millionths of an inch. What the supercharger did was keep atmospheric pressure inside the induction system equal to sea level pressure. It did this so much better than the Allison design that a Merlin developed more horsepower at 26,000ft than an Allison did in full power setting for take-offs! The problems with such a system are in cooling the fuel-air mixture, which has been heated by the compression of the supercharger, before it gets to the cylinder. A cooler fuel-air mixture results in a denser mixture in the cylinder, which results in more power. Cooling of the mixture was done through use of an 'intercooler' passage between the first and second stages of the supercharger, and an aftercooler between the blower outlet and the intake manifold.

The smooth, reliable power of the Merlin was mated to the ultra-smooth, sleek Mustang airframe in the summer of 1942. On both sides of the Atlantic, simultaneous and independent studies had been underway concerning the feasibility of a Merlin/Mustang combination. In Great Britain, a Mustang I, AL975, was modified to accept a Merlin 65 engine. Entirely new engine mounts were fabricated along with new metal panels to cover the slightly larger Merlin engine. The carburetor air scoop on top of the nose was deleted and a

much larger air scoop for the intercooler was added to the underside of the nose. Finally a four-bladed Spitfire prop was added. The project was known as Mustang X. Eventually five Mustang I airframes were so modified. The first flight of the Mustang X took place on 13 October 1942. Take-off was smooth but at 376mph the cowling came loose and the pilot was forced to land. Later that same day, the Mustang X hit a top speed of 390mph. By the sixth test flight on 19 October it had been discovered that an intercooler was not needed when a new Bendix pressure carburetor was used. This meant the scoop could be cut down, making the nose much more aerodynamic. An all new prop of 11'4" diameter was designed for the Mustang/Merlin combination. The end result for the Mustang X was 432mph at 22,000ft.

At North American Aviation in the US, a similar program was underway. A Packard-built V-1650-3 Merlin was installed in P-51 41-37352, one of two P-51s held back from the original production line specifically for Merlin engine tests. As with the British installation, all new engine mounts and sheet metal had to be fabricated to fit the taller Merlin. The finishing touch was a four-blade Hamilton Standard prop with 'cuffs.' Prop 'cuffs' had been tested back in 1940 and found to greatly add to propeller efficiency. The Merlin installation in the Mustang required 223,000 engineering hours, compared to the 78,000 engineering hours required to make the NA-73X.



The Rolls Royce Merlin engine mounted in a P-51 airframe (NAA)





AM208 was one of the Mustang X aircraft used by the British for evaluation of the Merlin/Mustang combination. (AAF)

North American's Merlin-powered P 51B prototype has new exhaust paneling and the original short-style radiator air scoop. (AFM)



AM121 was another Mustang X. It had been turned over to 8th Air Force for further tests of such items as a wooden propeller which would break away upon nose over landings such as has occurred here



On 30 November 1942, Bob Chilton took the XP-51B into the air for the first time. After 45 minutes Chilton was forced to land with an overheated engine. It was discovered that a chemical reaction between the different metals in the cooling system and the glycol coolant was causing the radiator to plug up. At the same time, a new larger radiator system was planned because of the demands of the aftercooler. A bigger radiator demanded a redesign of the air scoop. The first design was found to cause excess noise in flight, leading to its further redesign. The new scoop was added to the second XP-51B, 41-37469. Tests revealed that the XP-51B was 50mph faster and had a service ceiling some 10,000 feet greater than an Allison-powered Mustang. So glowing were North American's predictions for the new aircraft that the US Army Air Force had ordered 400 P-51Bs three months prior to the first test flight of the XP-51B.

With Army Air Corps buying 400 P-51Bs, and RAF ordering almost 1000, North American's Los Angeles plant simply could not handle the load. A second factory was needed. North American had such a facility in Dallas, Texas, where a subsidiary company was busy turning out B-24 Liberators. An additional order for 1350 more P-51Bs from Army Air Force settled it. The Dallas facility would also build Mustangs. Dallas-built P-51s were identical to Los Angeles-built aircraft but were designated P-51C. The first production P-51B flew on 5 May 1943, with the first flight of a C model coming in August.

The first arrival of a production Merlin/Mustang in Europe occurred in September 1943. After de-cocooning and assembly, the new aircraft were turned over to a brand-new fighter unit — the 354th FG at Boxed on 11 November 1943. It is interesting to note that at this time the 354th FG was a 9th Air Force unit, a fighter-bomber unit! The US Army Air Force still had little faith in the P-51 even though its range was roughly double that of other fighters in the theater and its performance far superior. 8th Air Force Bomber brass were the only ones that saw in the P-51B the aircraft that could, and would, protect the bombers all the way to and from targets in Germany. They insisted that the 354th be assigned escort duties. On 1 December 1943, pilots of the 354th FG flew their first mission in the P-51B, a familiarity sweep over Belgium and Northern France. Their leader for the day was Col. Don Blakeslee, the legendary Eagle Squadron veteran and CO of the 4th FG. All aircraft returned although one had suffered minor damage from flak. No German fighters were encountered. The first escort mission was flown on 5 December 1943 to Amiens, France. Again, no enemy air opposition.

On 11 December 1943, the 354th met the Luftwaffe for the first time as they escorted the 'Big Friends' to Emden. The Germans still did not want to fight and no damage was suffered by either side. On 13 December, the 354th flew escort on a raid to Kiel, 480 miles from Boxed, the farthest any Allied fighter aircraft had ever flown into Germany. A formation of Bf 110 twin-engine fighters were waiting but started to run when they saw the fighter escort. Lt. Glenn Eagleston jumped on one and scored many hits before breaking off his attack. The group flew to Bremen on 18 December and Lt. Charles Gumm shot down a Bf 110 for the first confirmed P-51B 'kill' of the war. The 354th FG would go on to shoot down 700 more enemy aircraft — the most air-to-air victories of any Allied outfit in World War II!

Modifications to the basic P-51B/C continued throughout the production run. A new engine, the V-1650-7 was introduced in the P-51B-10 and C-5 series. Horsepower was increased to 1590 at 8500 ft. An 85 gallon fuel cell was added behind the pilot which further increased the P-51B's phenomenal range. The new tank installation led to some control problems which were later ironed out through the use of all-metal elevators.

British use of the P-51B/C, called the **Mustang III**, began when No. 19 Squadron received brand-new aircraft in February 1944. Modifications to British aircraft included the sliding 'Malcolm Hood', a plexiglass 'bubble' canopy. Vision was much better and headroom was increased. Even though strictly a British development, several US Groups soon acquired a number of the new bubble canopies.

By war's end P-51B/Cs would serve on all fronts. A total of 3738 aircraft were produced, 944 of them being Mustang IIIs. Several were later modified to two-seat fighter trainers by removing the fuselage fuel tank and adding a second cockpit in its place. The Merlin-powered Mustang would break the back of the *Luftwaffe*. On 4 March 1944, Hermann Göring would look up into the skies over Berlin and see P-51Bs from the 4th FG flying escort to the B-17s. He knew then that it was a matter of time.



P-51B cockpit interior (NAA)



**N-3B
Gun Sight**

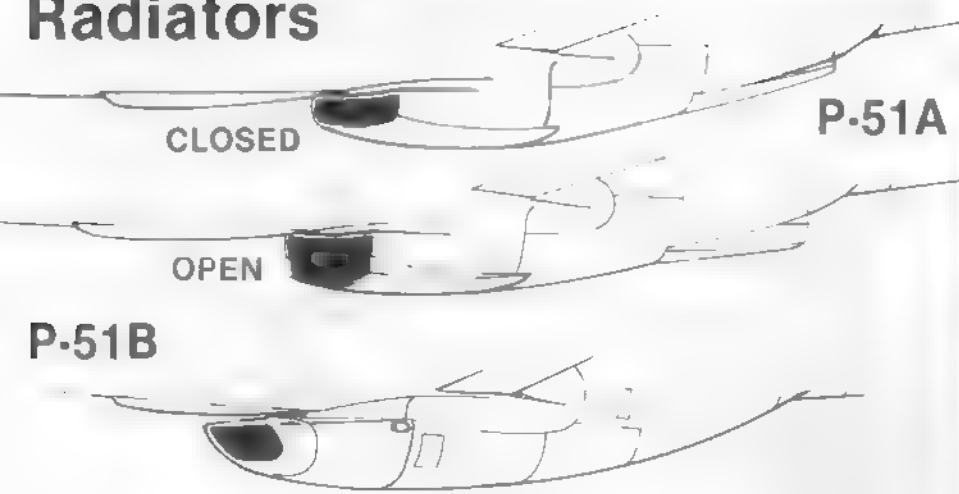




A pair of brand new P-51Bs just off the assembly line, on the ramp at Mines Field in LA. Note the barrage balloons and B-25 in the concrete revetment in the background (NAA)

A new P-51C in flight over Texas in 1944. The P-51C was identical to the B except that it was built at the Dallas North American plant. (Garrett)

Radiators





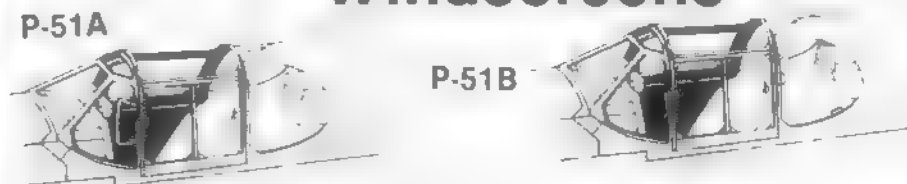
One of the new 354th FG P-51Bs gets the once-over by crews of the 401st BG. Note full use of white ID stripes to help bomber crews in identification (USAF)

A P-51C bought in a War Bond Drive by the citizens of Binghamton, New York. It was common practice to paint the name of the town or organization that filled its quota of War Bonds on the item that they bought (NAA)

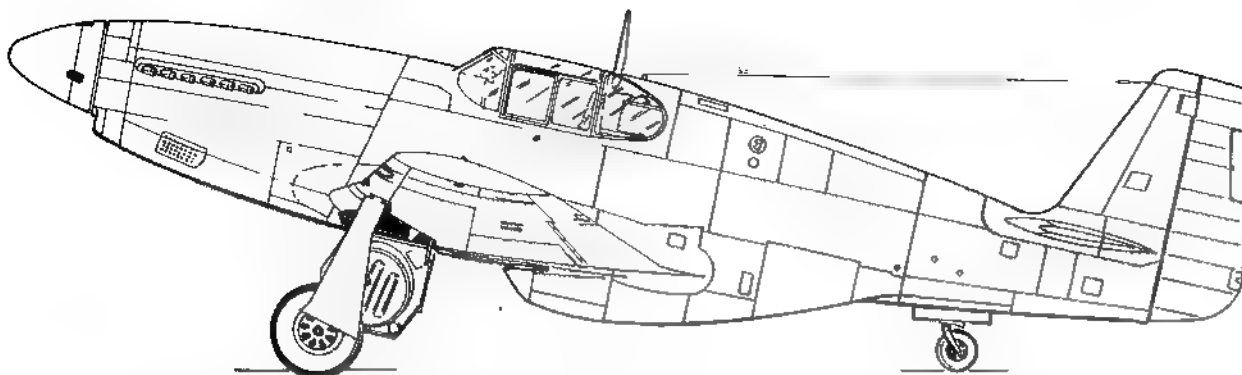
Nose Development



Windscreens



P-51B-C/Mustang III



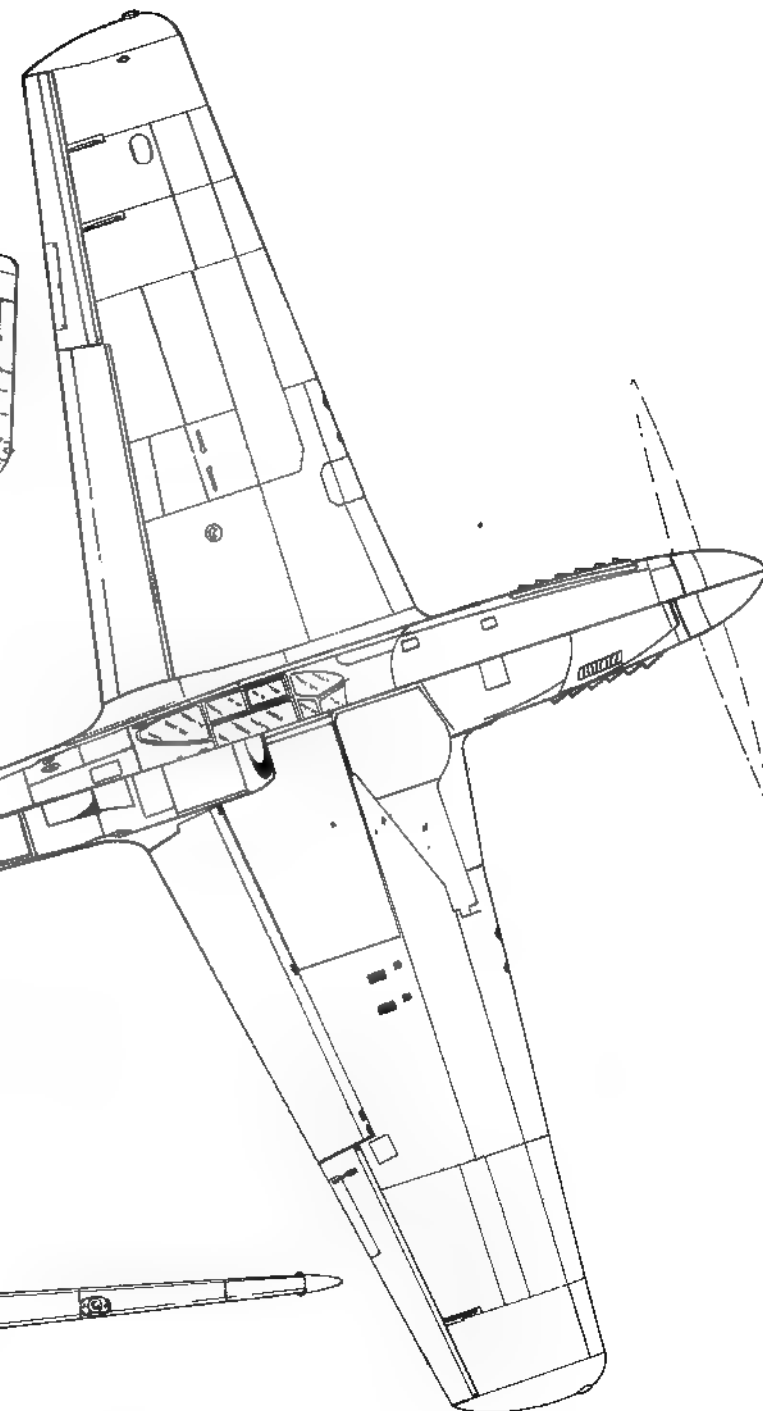
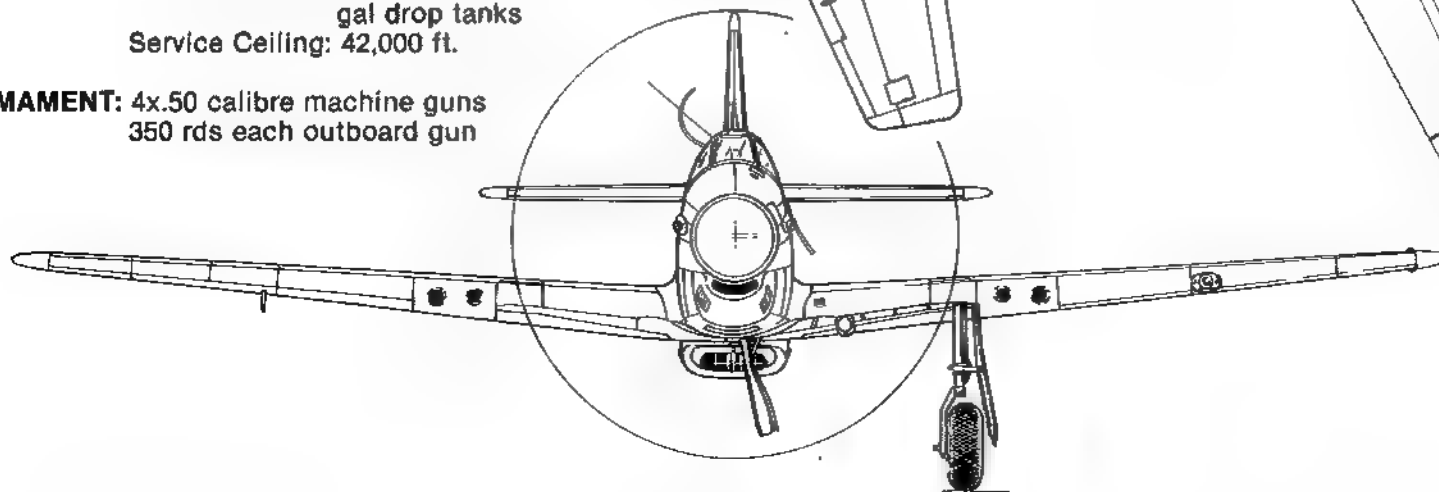
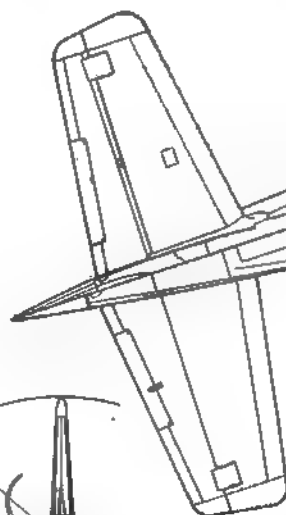
Specifications

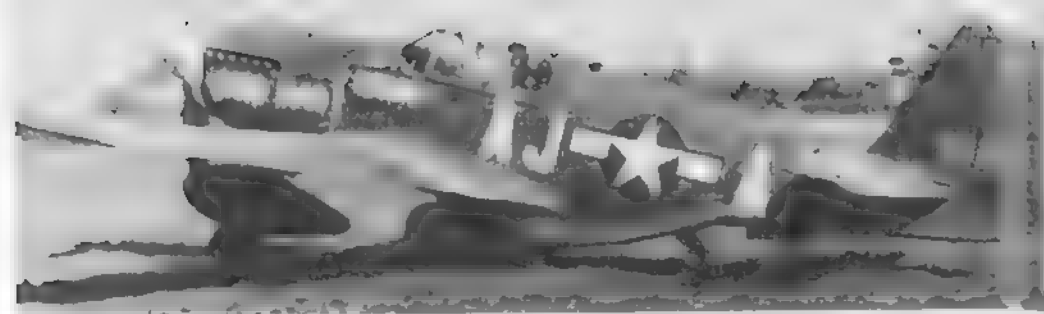
POWERPLANT: Packard-Merlin V-1650-3 12 cylinder
1649 cubic inch inline engine rated
at 1380hp on take-off, 1600 max War
Emergency setting.

DIMENSIONS: Wingspan: 37'0"
Length: 32'3"
Height: 8'8"
Take-off Weight: 9000 lbs. clean

PERFORMANCE: Max Speed: 440mph at 25,000ft.
Combat Range: 900 miles w/2 75
gal drop tanks
Service Ceiling: 42,000 ft.

ARMAMENT: 4x.50 calibre machine guns
350 rds each outboard gun





(Left & Above) Ding Hao!, personal mount of Major James Howard. Credited with 6½ Japanese aircraft while flying with the Flying Tigers. Major Howard was awarded the Medal Of Honor for the 11 January 1944 mission in which he took on an entire Bf 110 group for over a half hour - alone! (Turner)



Shortfuse Sa ee was the first Mustang of three that Capt. Richard Turner flew while with the 354th FG. Capt. Turner shot down five German fighters in this aircraft. (Turner)

Killer was the aircraft Capt. Bob Stephens used for at least 8½ of his 13 victories. Note that the shrouds have been removed from his exhaust pipes. (USAF)



Malcolm Hood



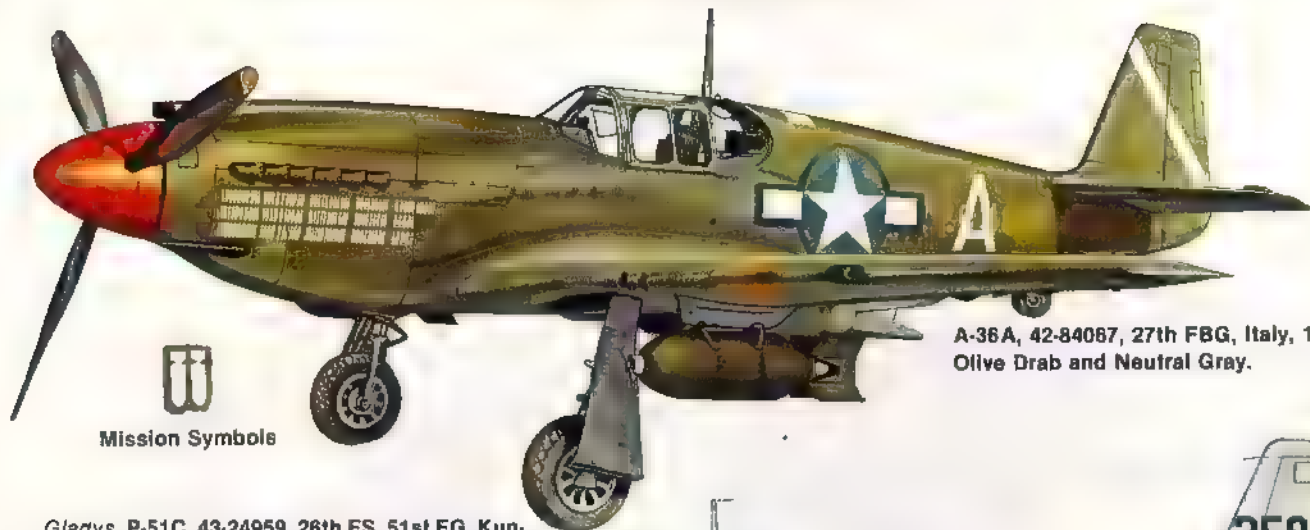
Exhausts



with shroud

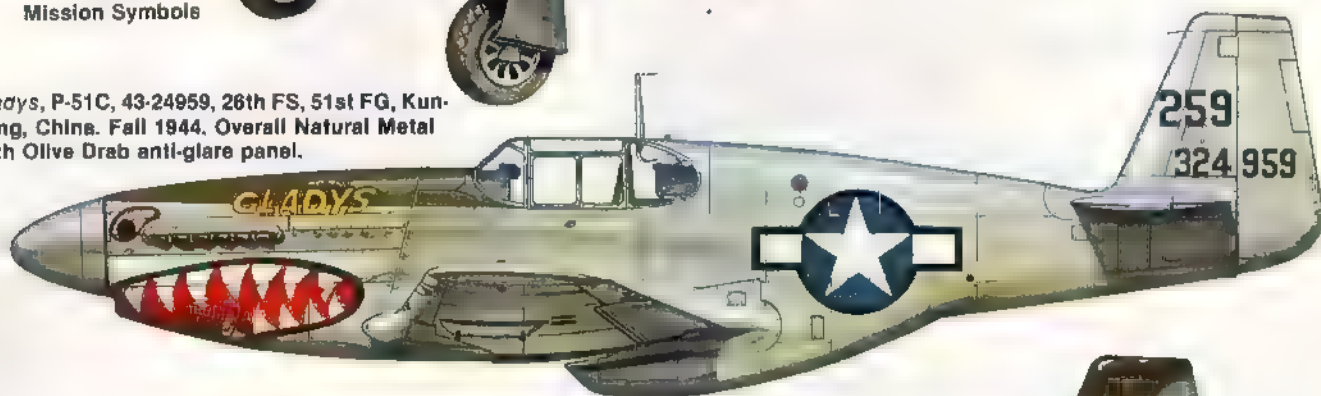


without shroud

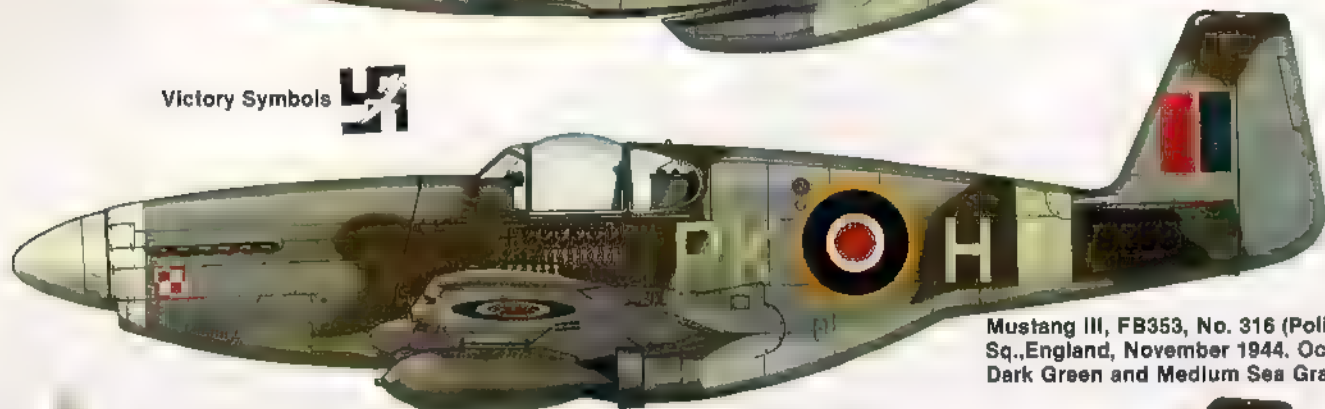


A-36A, 42-84087, 27th FBG, Italy, 1944.
Olive Drab and Neutral Gray.

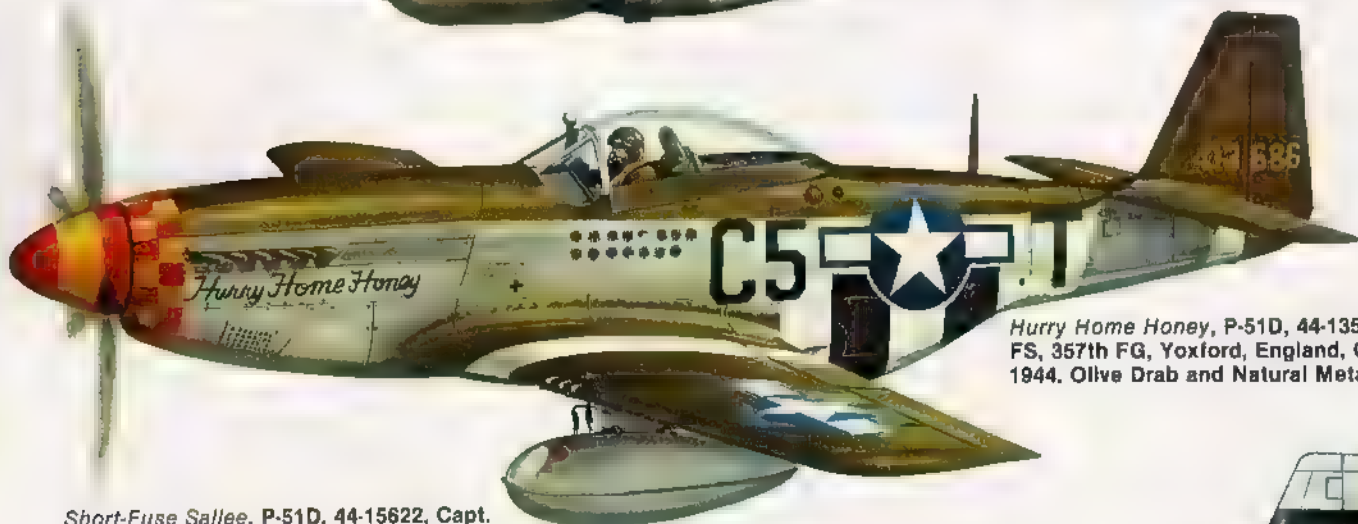
Gladys, P-51C, 43-24959, 26th FS, 51st FG, Kun-
ming, China. Fall 1944. Overall Natural Metal
with Olive Drab anti-glare panel.



Victory Symbols



Mustang III, FB353, No. 316 (Polish)
Sq., England, November 1944. Ocean Gray,
Dark Green and Medium Sea Gray.

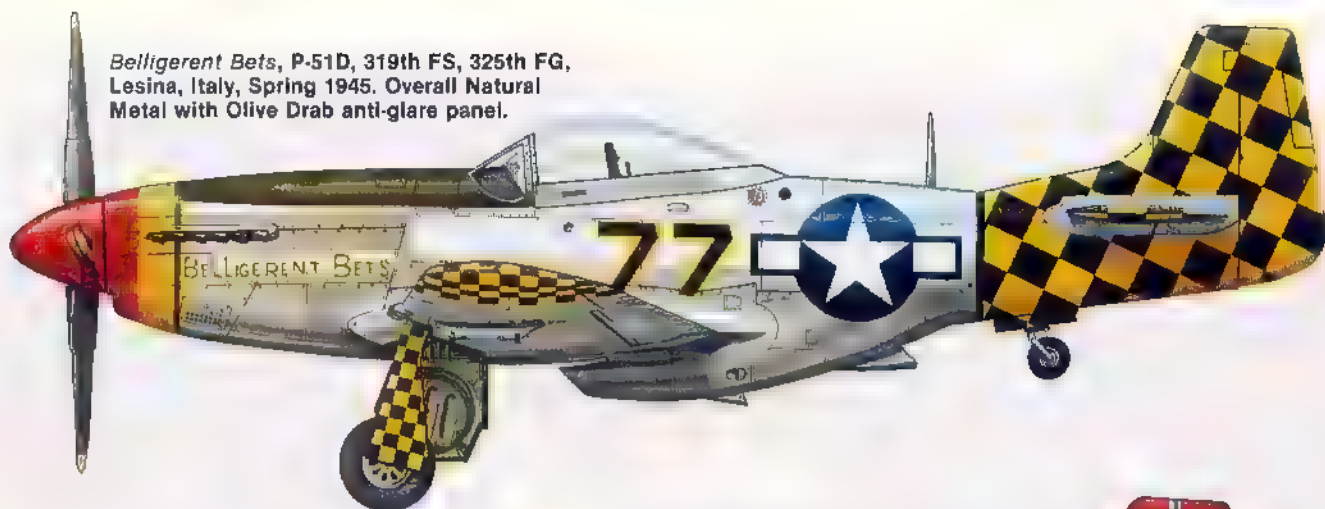


Hurry Home Honey, P-51D, 44-13586, 364th
FS, 357th FG, Yoxford, England, October
1944. Olive Drab and Natural Metal.

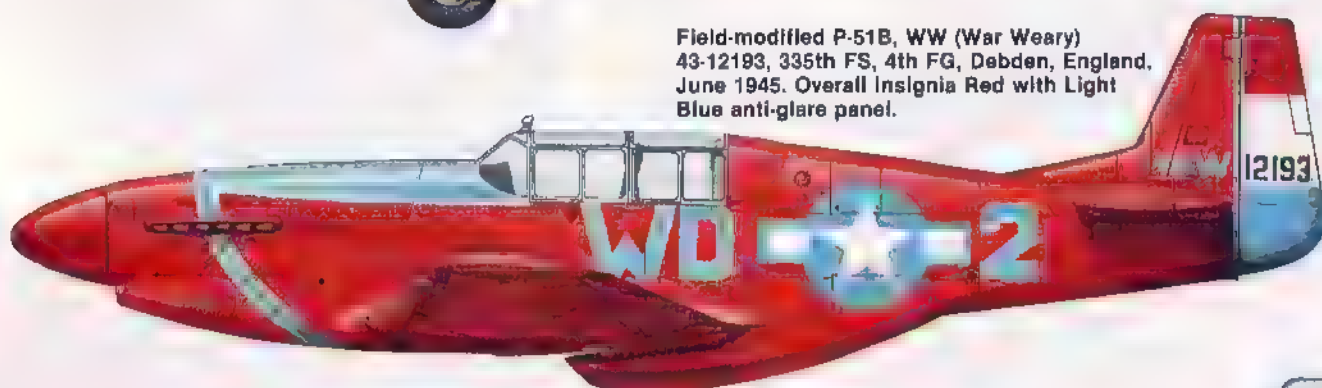
Short-Fuse Sallee, P-51D, 44-15622, Capt.
Richard E. Turner, 356th FS, 354th FG,
France, Summer 1944. Overall Natural
Metal with Olive Drab anti-glare panel



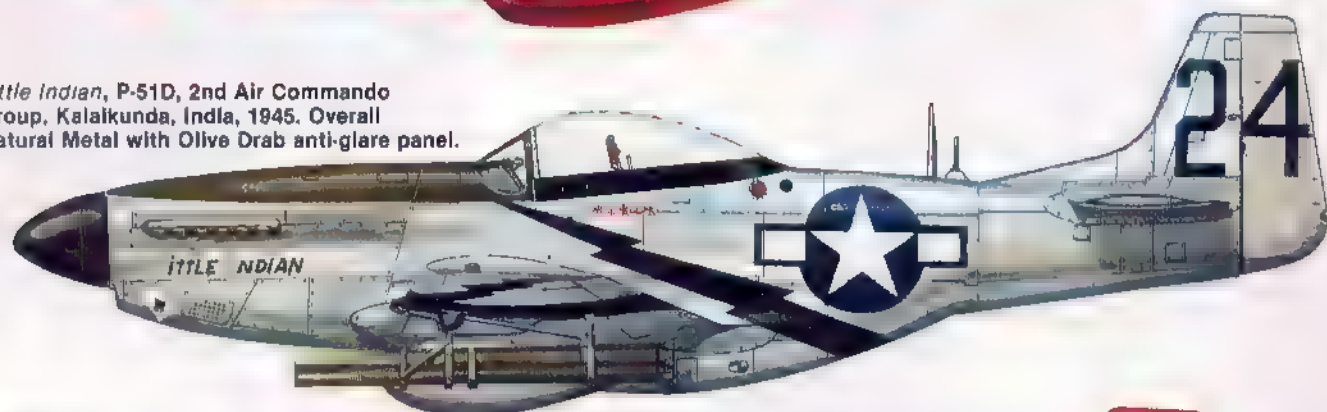
Belligerent Bets, P-51D, 319th FS, 325th FG,
Lesina, Italy, Spring 1945. Overall Natural
Metal with Olive Drab anti-glare panel.



Field-modified P-51B, WW (War Weary)
43-12193, 335th FS, 4th FG, Debden, England,
June 1945. Overall Insignia Red with Light
Blue anti-glare panel.

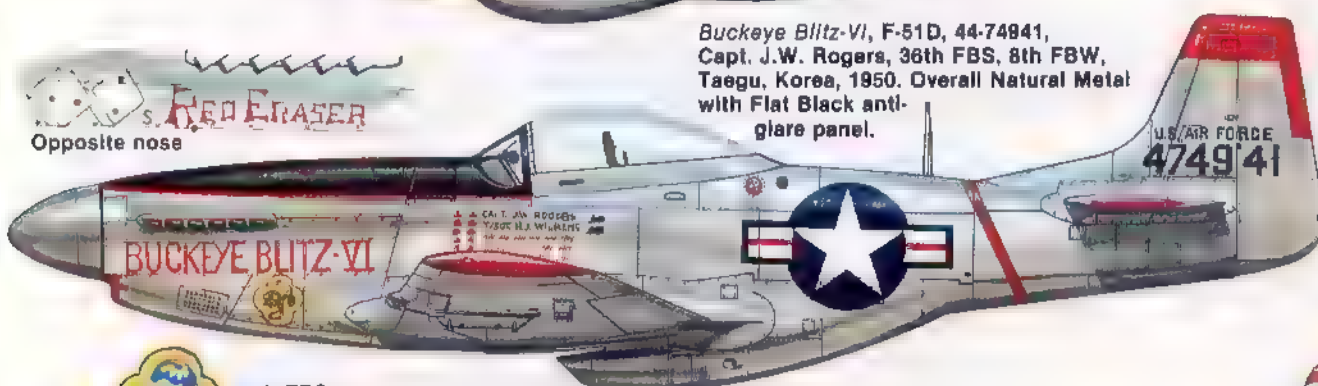


Little Indian, P-51D, 2nd Air Commando
Group, Kalaikunda, India, 1945. Overall
Natural Metal with Olive Drab anti-glare panel.

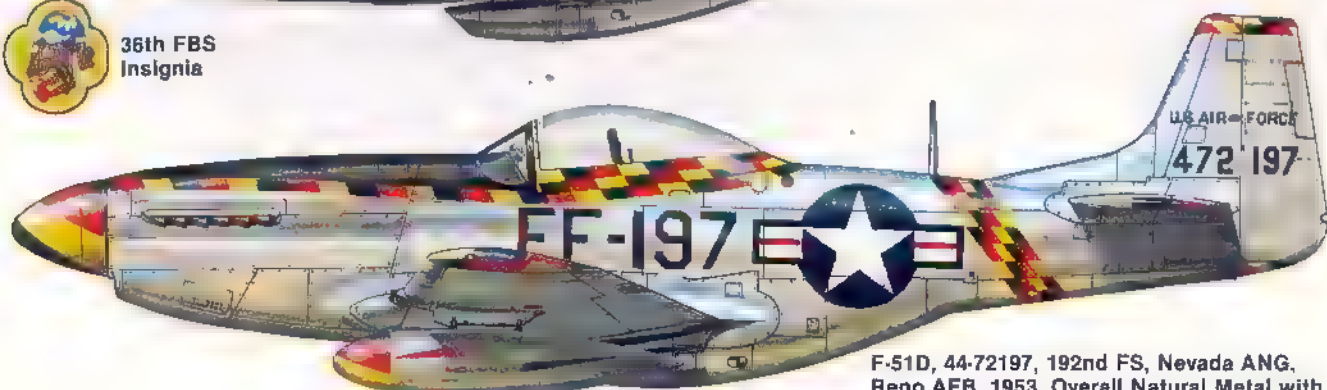


Buckeye Blitz-VI, F-51D, 44-74941,
Capt. J.W. Rogers, 36th FBS, 8th FBW,
Taegu, Korea, 1950. Overall Natural Metal
with Flat Black anti-glare panel.

Opposite nose
RED ERASER



36th FBS
Insignia



F-51D, 44-72197, 192nd FS, Nevada ANG,
Reno AFB, 1953. Overall Natural Metal with
Flat Black anti-glare panel.



Capt. Don Gentile and the famous Shangri-La. A member of the veteran 4th FG, Gentile was a former Eagle Squadron pilot. On this day, 8 April 1944, he would claim his 30th victory. (USAF)

Dwayne Beeson, in Boise Bee, gives and gets the 'thumbs up' with his crew chief. Beeson was also with the Eagle Squadron prior to US entry into the war, then flew with the 4th FG. (Tabatt)

Little Duckfoot, resplendant in full D-Day markings, is seen in front of the 357th FG hangar at Yoxford. Aircraft is Olive Drab and Medium Sea Gray with a red, yellow, red spinner and a band of red and yellow checks on the nose. The name is in white. (Robt. Lynch via Olmstead)





Lucky Leaky II came to grief in a field near Raydon, England, homebase for the 353rd FG. Note yellow outline to the codes and red rudder. It appears as if the last three digits of the serial have been handpainted in red on a lighter colored, possibly yellow panel. An APS 13 tail warning radar has been fitted to the vertical tail. (USAF)



AN/APS-13 Tail Warning Radar



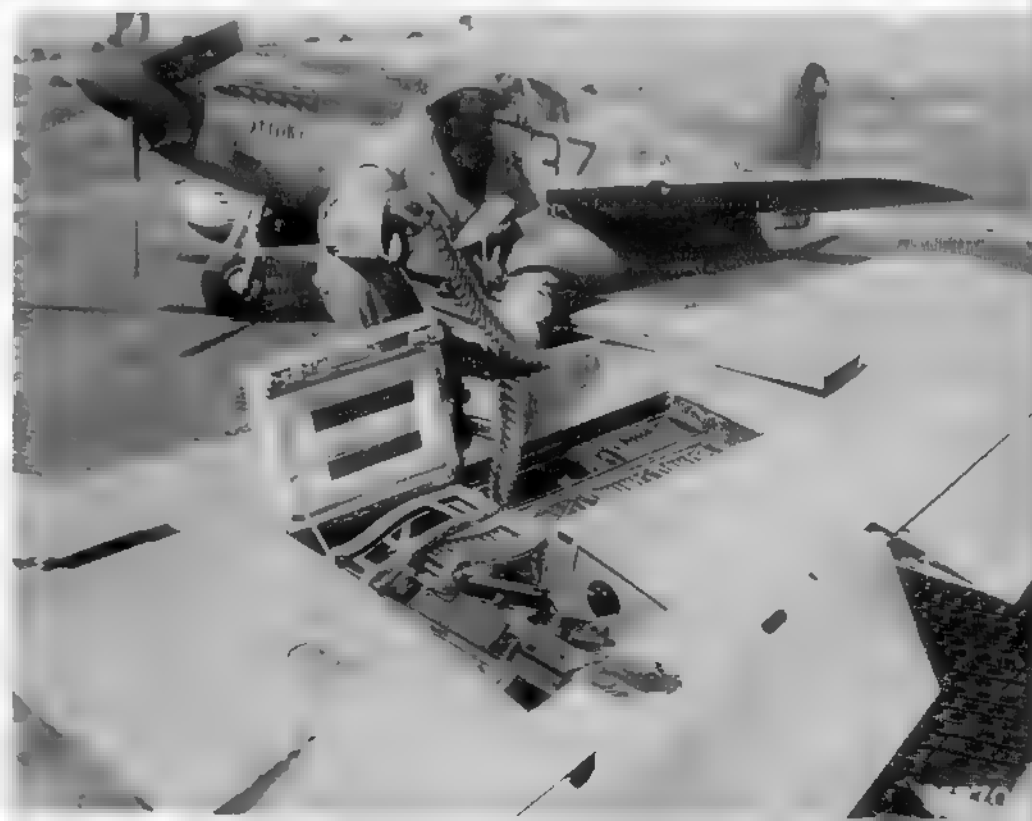
A Mustang III of the famous No. 112 'Sharkmouth' Squadron at Tarentella, Italy. Uppersurfaces were Dark Green and Grey with Medium Sea Gray undersides. Note the yellow wing leading edge. (Horvath via Ward)



'Big Friends and Little Friends', a pair of checkertail P-51Bs from the 325th FG escort 2nd Patches on a shuttle mission to Russia. Note the sharkmouth and very patched appearance of the B-17. (USAF)

Pfc. John Fields loads the wing guns of a P-51B from the all-black 332nd FG. Red nose and tail were the unit colors of the Italy-based 332nd. Then Col. Benjamin O. Davis was the Group's CO. (USAF)

Val Gal, a P-51C-5, was the first Allied aircraft to land in Southern France. The landing wasn't planned. Its pilot, a naval lieutenant, was forced down on the 'Dragoon' beachhead by a loose canopy. (USAF)





The sharkmouth on this P-51B indicates an aircraft from the successors to the famous Flying Tigers, the 23rd FG. Note the 'Bazooka' mounts. Also interesting is the DF loop on the rear spine, a very late fitting. (USAF)

Princess, a P-51C of the yellow-tailed 530th FS, 311th FG, is seen over China in July 1945, flying escort for a 14th AF C-47. (USAF)

This P-51B is from the 52nd FG, 15th Air Force in Italy. Nose and spinner are in red, while the tail and wingtips are yellow with black trim. Note the small code letters and red 'BY' in center of the tail numeral. (Staples via Garrett)

Numerous 'war weary' P-51Bs were converted into two seaters, mainly for use as squadron hacks. VF-4 is from the 4th FG and painted overall light blue with red nose and trim. These two-seaters usually carried outlandish color schemes, often unrelated to the unit's normal markings. (AFM)



P-51D & K / Mustang IV

The P-51D is generally accepted as the definitive Mustang, even though some later models were lighter and faster. It was most definitely the finest fighter design to come out of World War II. Every modification that had been performed to the B model in its production run was incorporated into the D design. It would use the Packard-Merlin V-1650-7 engine, the same as late model P-51Bs and Cs. Lower supercharger gear ratios resulted in much better low altitude performance. Maximum power from the 7 was 1750hp on War Emergency Low Blower setting at 3,000rpm. There were two major items that set the D model apart from all earlier Mustangs. The first was an armament change from four .50 calibre machine guns to six, all mounted in the wings. Since the four .50 calibre guns in earlier P-51s had had a tendency to jam due to their being mounted on their side, the six .50s in the D model were mounted upright. This eliminated most of the jamming problems. The ammo load of the D was increased, not only totally to cover the extra pair of guns but also by extra rounds per gun. There would now be 400 rounds for each of the inboard guns and 270 rounds for each of the other four guns. The underwing pylons were strengthened so as to carry either the new 110 or 165 gallon drop tanks or a 1,000 lb bomb. Later D models would be able to carry five-inch rockets on short launch stubs on the underside of the wing.

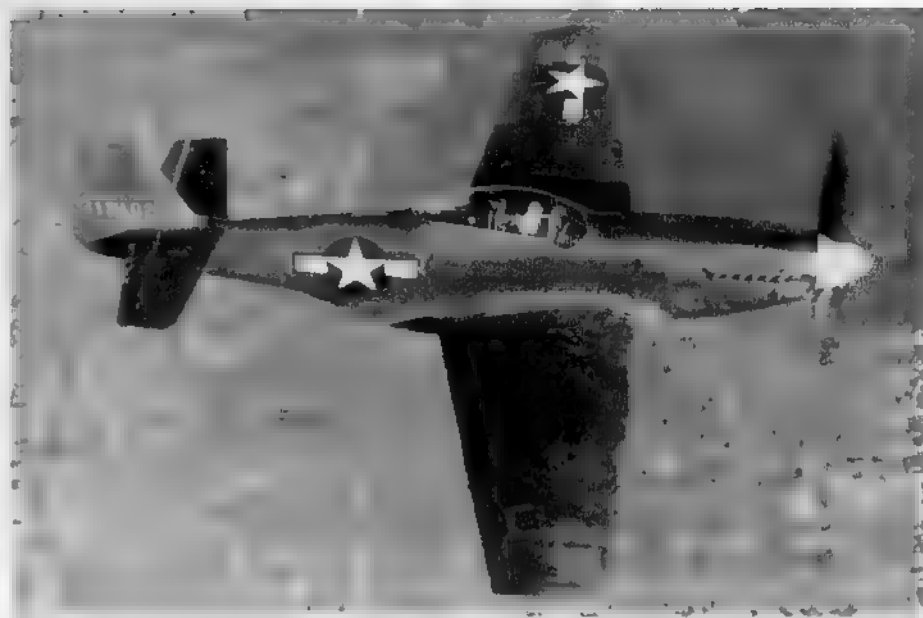
The third major change was, of course, the bubble canopy. The P-51D bubble canopy was a direct result of the research that developed the plastic bombardier's nose on aircraft such as the B-17 Flying Fortress. A new windscreen was also designed to complement the canopy forward. Use of the bubble canopy meant that the 'razorback' aft fuselage had to be cut down level with the top of the nose. Later D models would have a 'fin fillet' added to extend the vertical fin. This dorsal fin was added to correct some directional stability problems inherent in the Merlin Mustangs. Some units also modified P-51B/C models with the added dorsal fin.

The P-51K was a Dallas-built D model with a redesigned canopy for more headroom. The K also used an Aeroproducts propeller in place of the Hamilton-Standard prop found on all other Merlin/Mustangs. It was not a design development for better performance that led to the use of the Aeroproducts prop, rather it was the fact that Hamilton Standard could not keep up with demand for their prop which was used on most of the military aircraft of the period. The Aeroprop was different in many ways. It used a hollow steel blade. In place of the H-S solid aluminum type and it used a totally different pitch change mechanism which allowed faster warmup and 6° per second blade angle changes. However, the Aeroprop suffered from blade imbalance and up to 19% were rejected for excessive vibration. Most of the P-51K production run went to Great Britain or Australia.

All photo recon versions of the Mustang were called F-6. The F-6D/K was based on the P-51D/K airframe and differed from earlier recon Mustangs in that all the cameras were built into the lower aft fuselage instead of being behind the cockpit. Three cameras were mounted: a K-17 and K-27 for aerial mapping up to 30,000 ft altitude and a K-24 low altitude (0-10,000 ft) camera. Additionally, the full complement of .50 calibre machine guns were carried. North American/Los Angeles modified 136 P-51Ds to F-6D specs while the Dallas plant built 163 F-6Ks.

More P-51Ds would be built than all other Mustang variants combined, a total of 9603. They would equip 45 squadrons in the 8th Air Force alone. With the exception of a few P-47 units, and even fewer P-40 units, Mustangs would equip almost the entire USAAF fighter force in 1945. The P-51D had met and defeated the best that the Germans and Japanese could send against it. The world was once again safe for free people to inhabit.

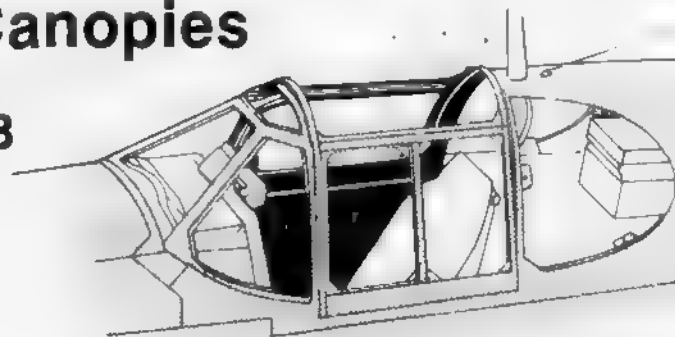
Or was it? Five years later, on a cold desolate peninsula in Asia, an aggressor would again try to impose its will upon an unwilling people. The P-51D would fight again and do very well in this, the first jet war. Still later, in 1956, they would fight over the deserts of the Middle East. Israel would use the best of three World War II air forces to protect themselves: Spitfires, Messerschmitts and P-51Ds. There was no question that the Israelis considered the Mustang far and away the best of the three. It would be the last major air action for the Mustang.



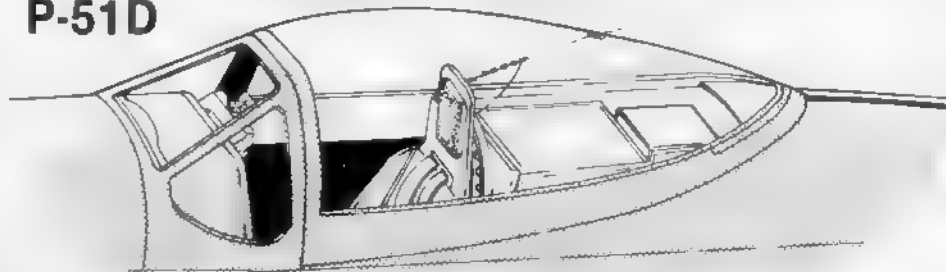
P-51B, s/n43-12102, was pulled off the assembly line and converted into the P-51D prototype. Note the canopy slide track just behind the canopy. (NAA)

Canopies

P-51B



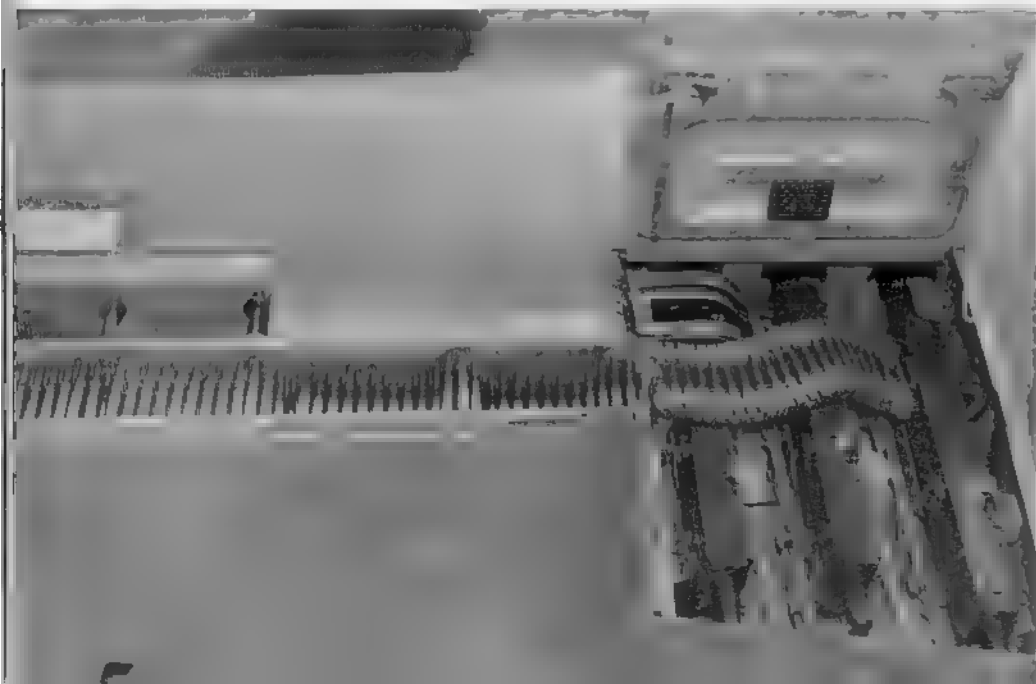
P-51D





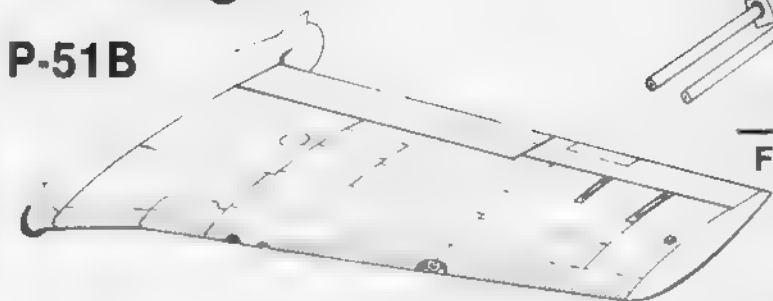
A fine study of a beautiful airplane - a P-51D-5. (Garrett)

(Above Left) Left gunbay of a P-51D. Note that the guns are now mounted in an upright position. This solved many of the jamming problems which had plagued the B. (NAA)



Wings

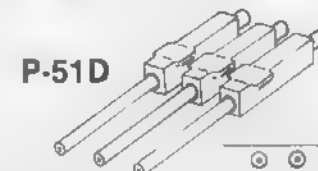
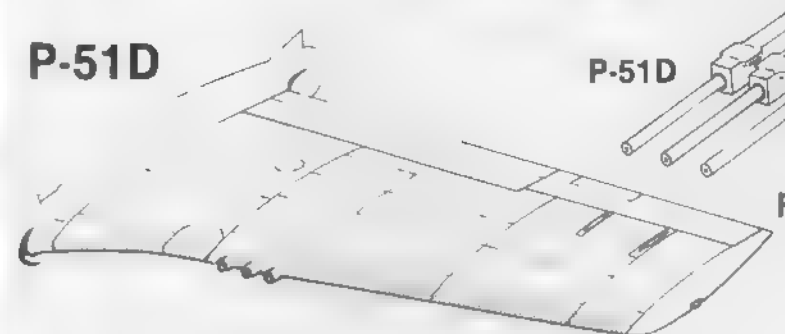
P-51B



Front View

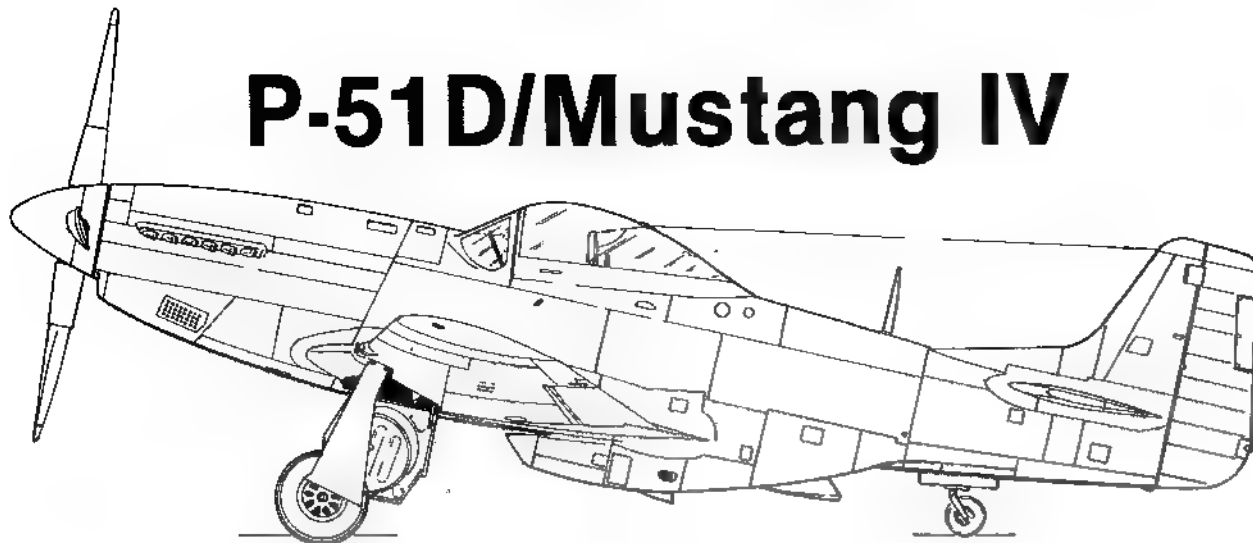
Guns

P-51D



Front View

P-51D/Mustang IV



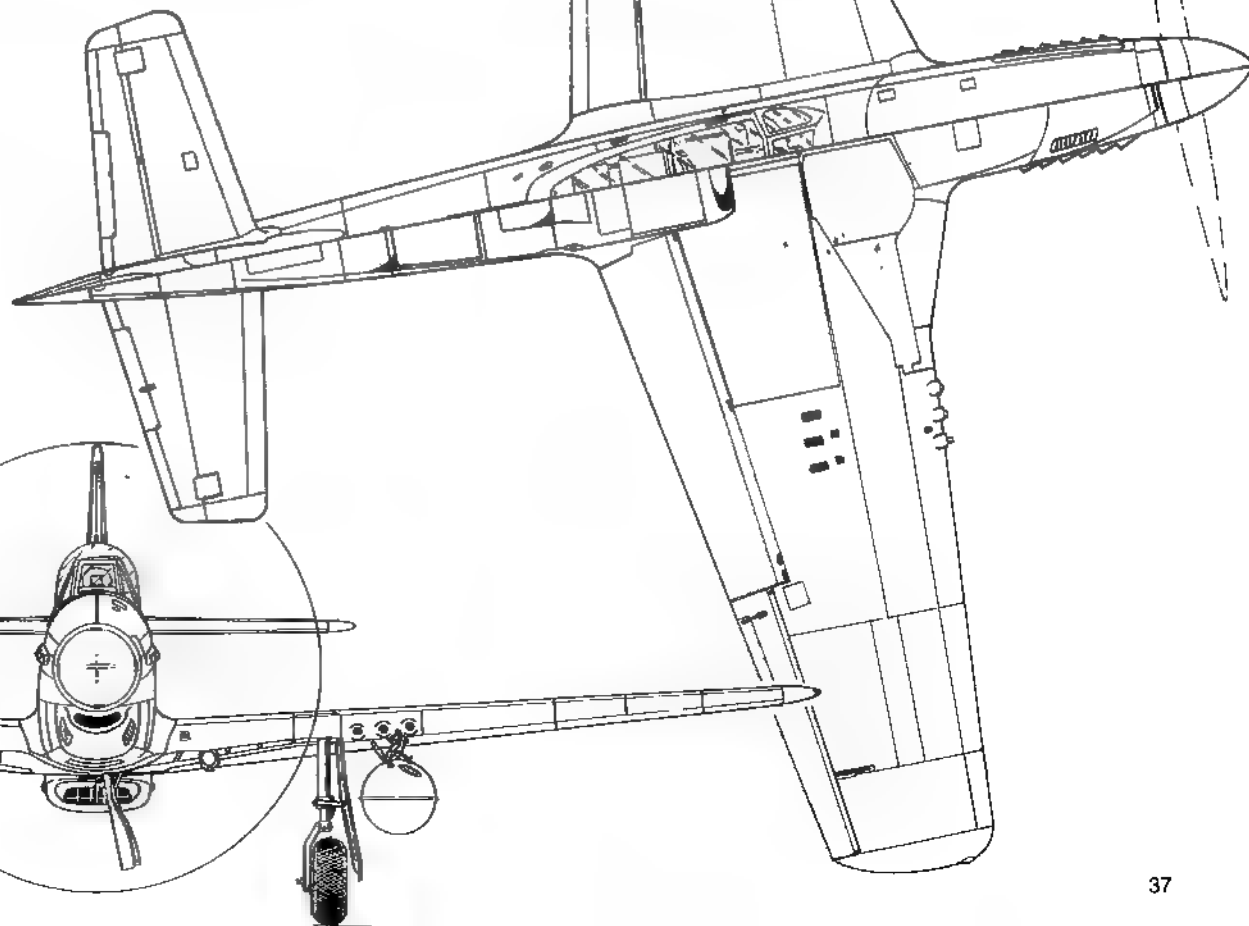
Specifications

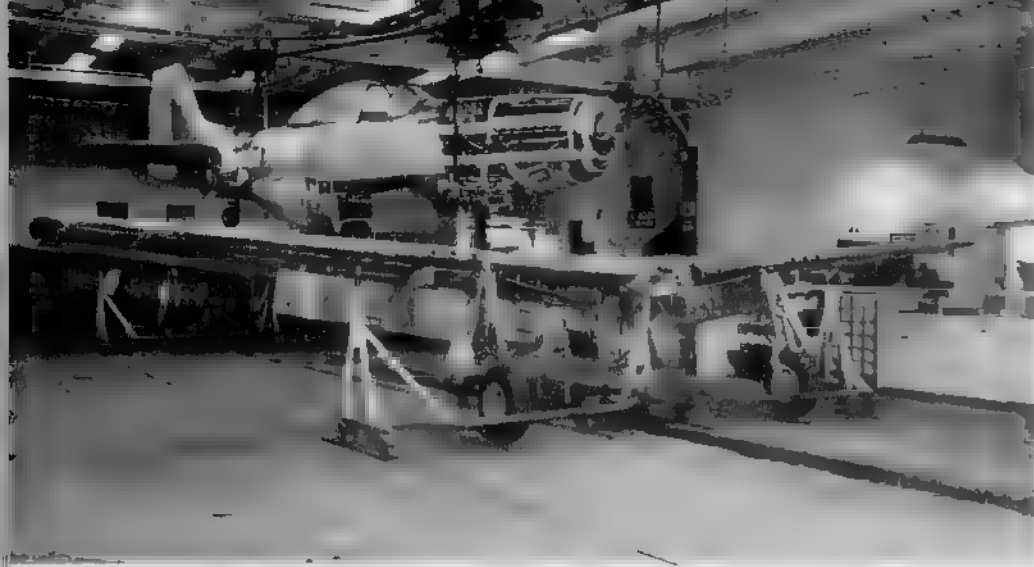
POWERPLANT: Packard-Merlin V-1650-7 12 cylinder
1649 cubic inch inline engine rated at
1490hp on take-off, 1720 at max War
Emergency setting.

DIMENSIONS: Wingspan: 37'0"
Length: 32'3"
Height: 8'8"
Take-off Weight: 9450 lbs. clean

PERFORMANCE: Max Speed: 437mph at 25,000ft.
Combat Range: 1000 miles w/2 110
gal drop tanks
Service Ceiling: 42,000 ft.

ARMAMENT: 6x.50 calibre machine guns
400 rds each inboard gun
270 rds each center and outboard
guns

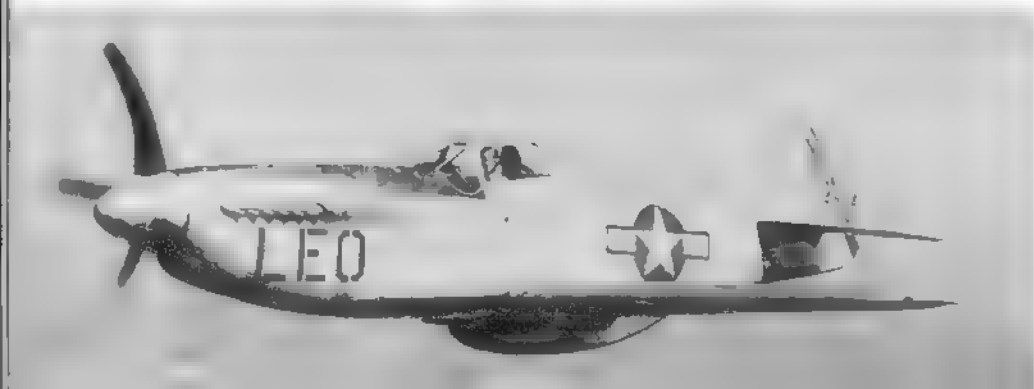




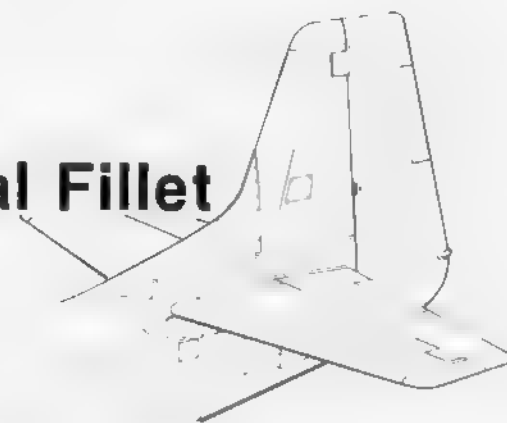
Close-up of the vertical tail of a P-51D-25 showing the fin fillet and APS-13 Tail Warning Radar antenna. (USAF)

It went together just like the kit! (NAA)

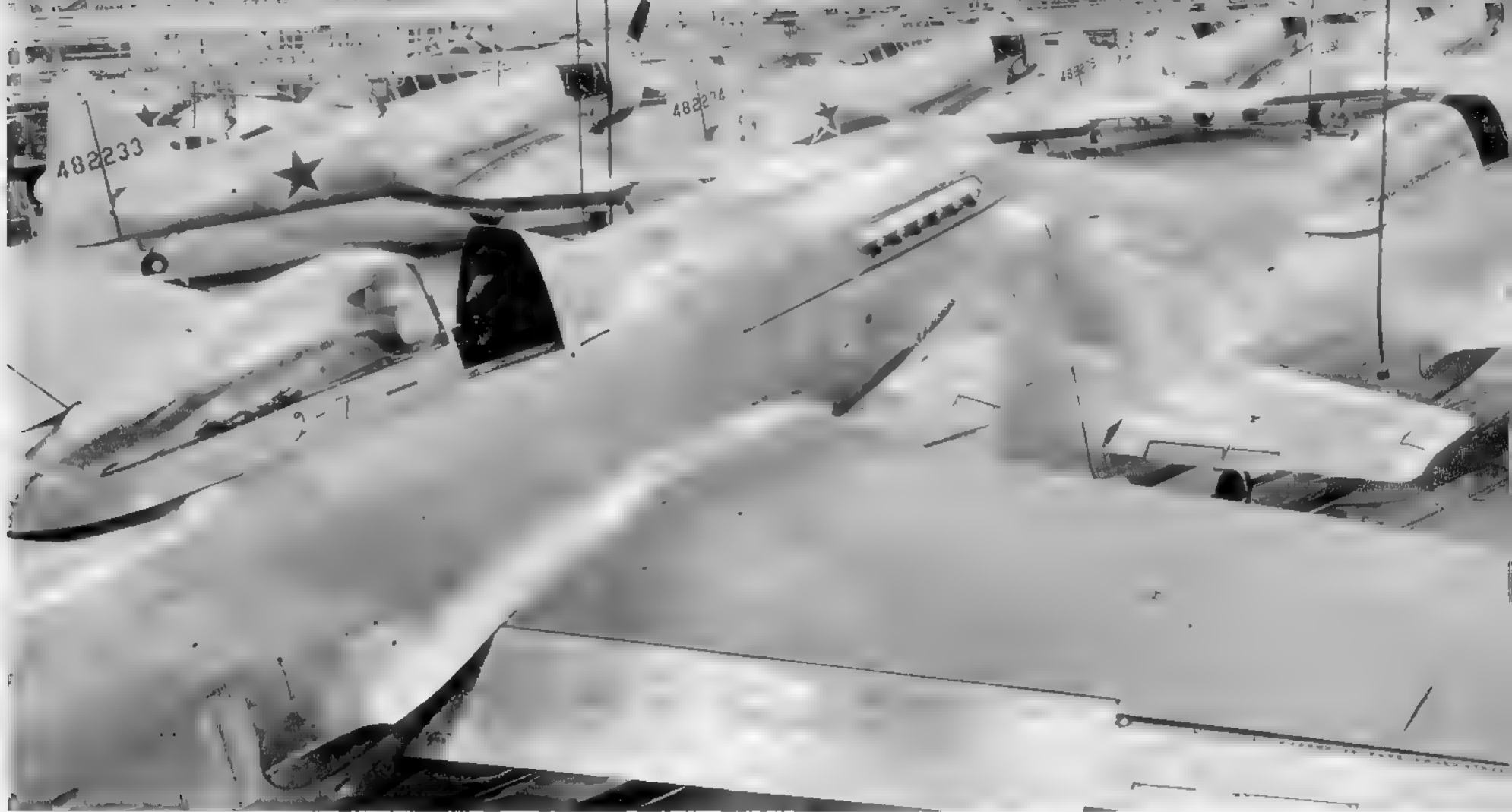
North American pilot Joe Barton taxis the 10,000th Mustang, autographed by all its builders, across the ramp at Mines Field. Note the 'Thumbs Up' insignias. (NAA)



Dorsal Fillet



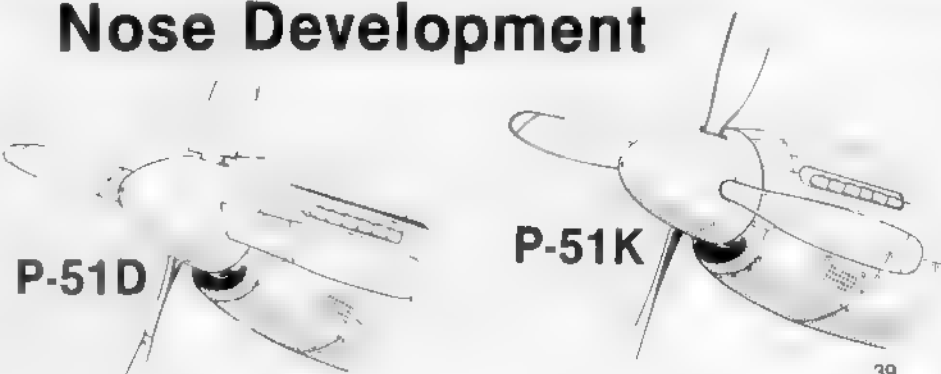
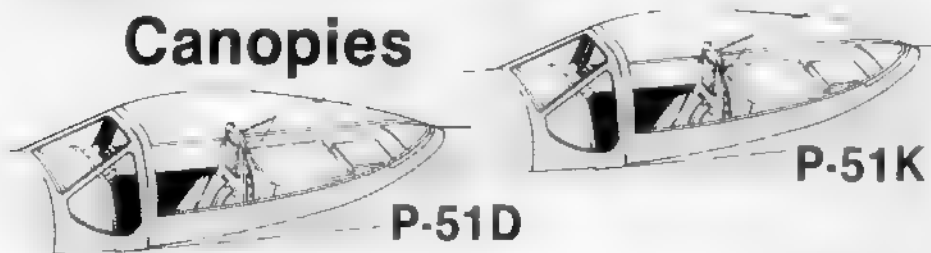
Leo belonged to a stateside P 51 training unit. The red and white stripes on the tail have black trim and are repeated under the wing, as is the serial number (USAF)



The Dallas production line. Notice that the main wing panels are painted in primer, prior to being sprayed silver. All P-51Ds were painted in this manner. Also note the T-6 trainers in Soviet markings. (NAA)

Nose Development

Canopies





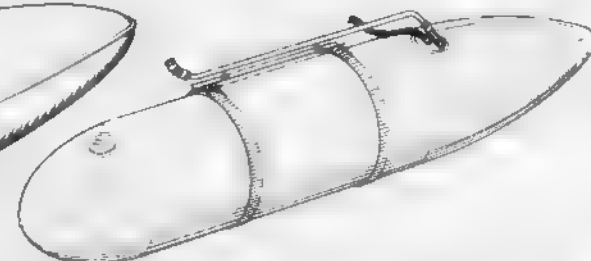
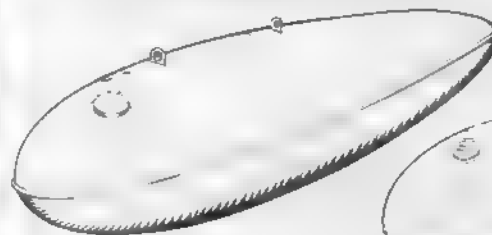
Chute! You're Faded carries the red and white spinner and checkered nose of the 339th FG. The inner gear doors are just starting to 'bleed down' from lack of hydraulic pressure, which occurs soon after shutdown of the engine. (USAF)

Dallas Doll from the 353rd FG at Raydon. Note the 110 gallon drop tanks and much weathered national insignia and D-Day stripes. (USAF)



Drop Tanks

75 Gallon Tank



110 Gallon 'Paper' Tank



Another 353rd FG aircraft, Ginny, ran off the Raydon runway and sank in the English mud. Note the low-visibility grey national insignia. (USAF)



The absolute ultimate in Mustang markings, Big Beautiful Day, flown by the CO of the 78th FG, Col. John D. Landers. (AFM)

Missouri Armada is another of Capt. John Englands' aircraft. Coded G4 * H, she is painted in the Medium Green/Light Sea Grey combination applied to many 357th FG aircraft after the D-Day invasion. (Olmsted)

Little Lady, KI * K, of the 20th FG. Some 20th FG aircraft like 'Lady' had no white in-between the black nose stripes. (Garrett)





The red nose and yellow tail on VF ★ D show her to be from the 52nd FG at Madna, Italy (Staples via Garrett)

Billy Boy, a 364th FG P-51D, is seen high over England upon returning from a mission deep into Germany. (Garrett)

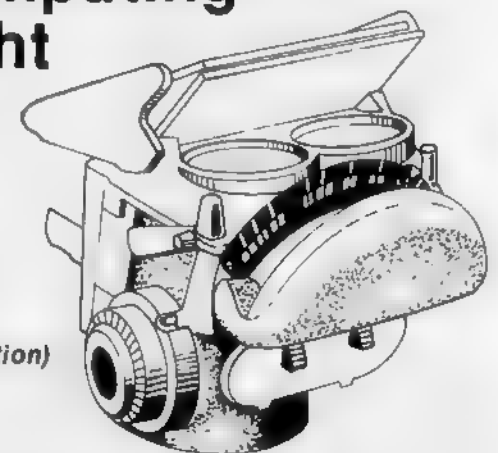
Denver Belle suffered a damaged wing tip during a taxiing accident at Honnington, home of the 364th FG. Nose is white with blue stripes. (USAF)





The first 'computer gunsight' - just dial the correct airplane, line him up and shoot! (NAA)

K-14 Computing Gun Sight



(sunshade in retracted position)

The Commanders of the four 15th Air Force P-51 units are seen flying formation over Italy in 1945. From the top they are: the red-striped 31st FG, yellow-tailed 52nd FG, red-tailed 332nd FG and checkertail-ed 325th FG. (USAF)



Zoom Zoozie on the captured airfield at Polzen, Germany. Zoozie is from the 1st Scouting Force and carries the red and white tail and nose motif of that unit. Note the whitewall tires. (USAF)

This is the 5th Air Force repair depot at Lingayen Airstrip, clearly showing the black stripes used to identify 5th AF aircraft. The reasons why two of the P-51s have three stripes while the rest have two stripes is unknown. (USAF)

Col. William Daniel, an ace and CO of the 31st FG, flew Tempus Fugit. The nose and tail stripes are red, as is the name. (Garrett)





Jumpin' Jacques is from the 3rd Air Commando Group. The spinner, nose flash, tail and name are in Medium Blue while the tail code letter is yellow. Note the black, white, black stripes on wings and fuselage. (Munkasy via Garrett)

Shawnee Princess is from the 482nd FS, 506th FG on Iwo Jima. The entire tail, except for the natural metal rudder and elevators, is bright yellow. (USAF)

My Ned, a yellow-tailed P-51D from the 530th FS based at Hblian, China, in August 1945. Note bomb sighting stripes on wing leading edge. (USAF)

Major Wm. Dunham flew "Mrs. Bonnie" while he was CO of the 348th FG. Major Dunham was officially credited with 15 kills although there are 16 shown on this aircraft. (Tabatt)

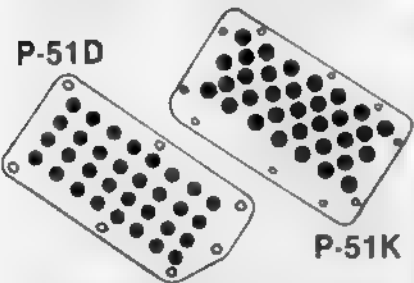




The blue rudder with a white 'Southern Cross' symbol show this P-51K to be from No. 3 Squadron, RAAF. No. 3 Sq was based at Fano, Italy. Note the unusual louvered vent panel on the nose. (Garrett)

VENT PANELS

P-51D



P-51K

No. 2 Squadron, South African Air Force, went into action in Korea in December 1950 with P-51Ds such as My Boy. The large beat-up tanks under the wings are napalm. (SAAF)





A 12th FBS crew chief runs up the big Merlin prior to another dawn strike against Communist positions in Korea. Nose, wing, stab and tail tip are in Insignia Blue with yellow trim. (NAA)



No. 77 Squadron RAAF was one of the first UN units to serve in Korea. This P-51K has just returned to Taegu after a mission with all but one rocket expended, 3 August 1950. (US Army)

Zero-Length Rocket Launchers



Front



Rear

Some late model P-51Ds were converted into TF-51D two-seat trainers. The conversion involved removal of the fuselage fuel tank, addition of the second cockpit, enlargement of the canopy and moving the radio gear. (NAA)

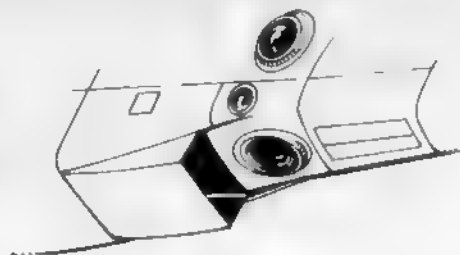




F-6D under the camouflage nets at North American/Los Angeles. Note how the upper camera port bulges away from the fuselage. The third camera port can be seen just forward of the tail wheel doors. (NAA)

44-11998 is one of the P-51K airframes built as an F-6K photo recon ship. Note the AeroProducts prop and bulged canopy that marked all the P-51Ks. (NAA)

F-6D Camera Installations



Gonzales was an F-6D from the 2nd ACG. (AFM)



P-51H



The first lightweight Mustang, the XP-51F, s/n43-43332. Note the long, very streamlined canopy and three-bladed Aeroproducts prop. (NAA)

The XP-51G was equipped with an experimental Rolls Royce 14 SM engine and five-bladed Rotol prop. The redesigned main landing gear and wheels are very evident in this photo. (NAA)



The P-51H was the end result of a program at North American to cut weight off the Mustang so as to make it more competitive with the Spitfire and Messerschmitt in rate of climb. A lightweight fighter study, combined with combat reports indicating problems that P-51 pilots were encountering and test results from three experimental Mustangs — XP-51F, XP-51G and XP-51J — eventually evolved into the product on lightweight P-51H. The test weight of the XP-51F was to be kept below 5700 lbs, down 1300 lbs from the P-51D. It was accomplished through the use of a much thinner cross-section wing, a redesigned bubbletype canopy, a much smaller landing gear strut and wheels and an Aeroproducts prop of lighter weight and three blades. The engine was the proven Packard V-1650-3 as used in the P-51B. The XP-51F weighed in at 5635 lbs and test flights resulted in a top speed of 466mph at 29,000ft and a rate of climb of 4,000ft per minute.

The XP-51G was an XP-51F airframe fitted with an experimental Rolls Royce RM-14SM engine that featured a very touchy fuel control metering device in place of a carburetor. When the device was 'right' it would develop over 2,000hp at 20,000ft. Top speed for the XP-51G rose to 495mph and a climb rate of over 5,000ft per minute was attained. Due to the fact that the cockpit was not pressurized, the service ceiling was limited to 46,000ft. The XP-51J was a stretched lightweight airframe built around the new Allison V-1710-119, which was supposed to be equal to the special Merlin RM-14SM. Tests were flawed by many problems with the new engine. Eventually the problems were ironed out and the engine went on to power all P-52 models beyond the E.

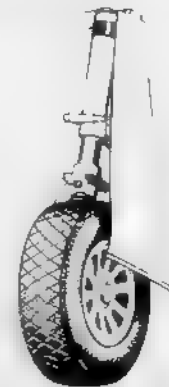
The P-51H was basically an XP-51F with a thirteen inch stretch to the fuselage using the Packard V-1650-9 which delivered 1380hp at 3,000rpm and 2270hp in War Emergency Low Blower setting with water injection. The thirteen inch stretch was added to correct stability problems that had been encountered in the other lightweights. A taller vertical fin was fitted to all production P-51Hs after the 33rd aircraft. The H also featured a four-bladed, cuffless Aeroproducts prop, a smaller chin scoop and a larger, deeper radiator housing.

Contrary to popular belief the P-51H never saw combat in any war. It was the only Mustang never to do so and also the only type not sold to any foreign nation. Although 370 aircraft had been delivered to the Army Air Force prior to V-J Day, none found their way to combat units in time for the final fight. By the time the Korean War broke out in June 1950, the P-51Hs were all but phased out of active US Air Force service. However, the H model did perform yeoman duties for the US Air Force in the tough years between the two wars when that service was in transition to an entirely jet inventory.

Landing Gear



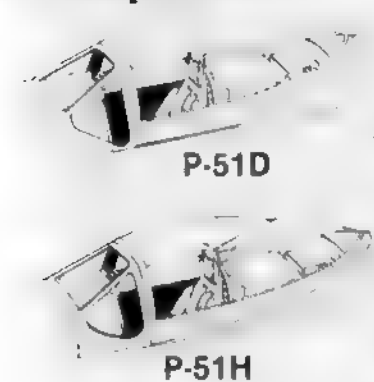
P-51D



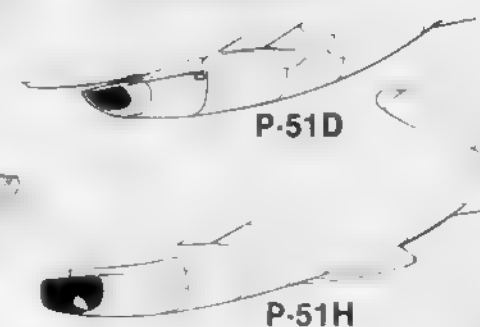
P-51H



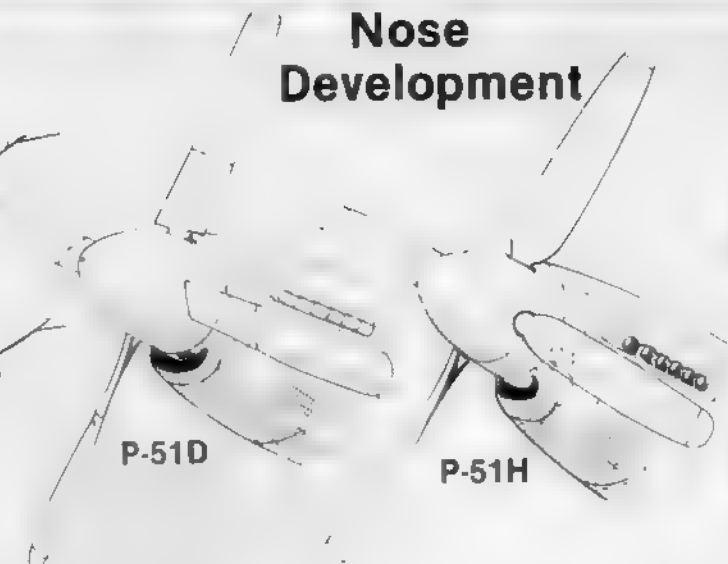
Canopies



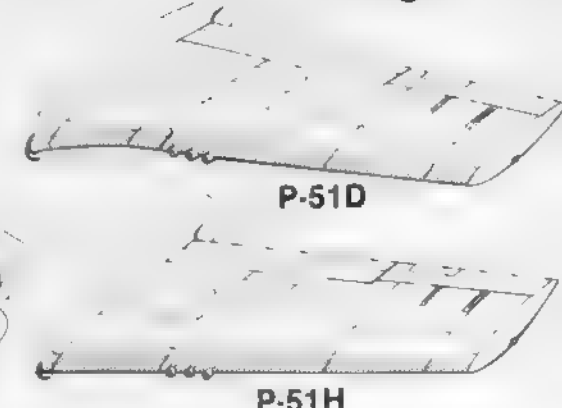
Radiators



Nose Development



Wings

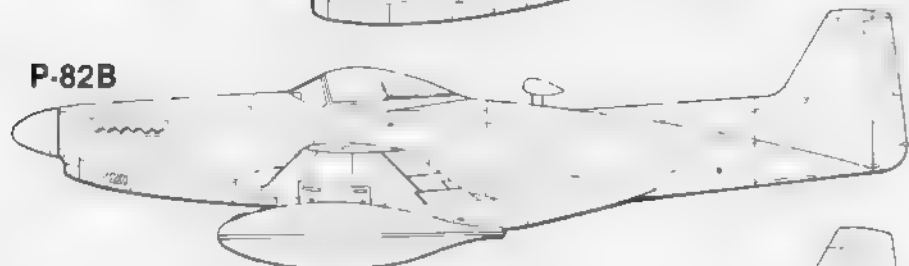


Twin Mustang Development

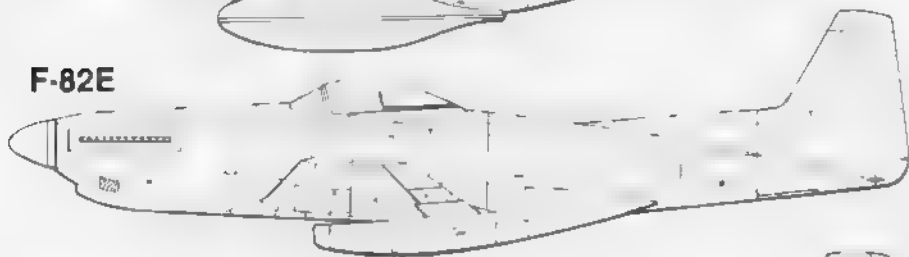
XP-82



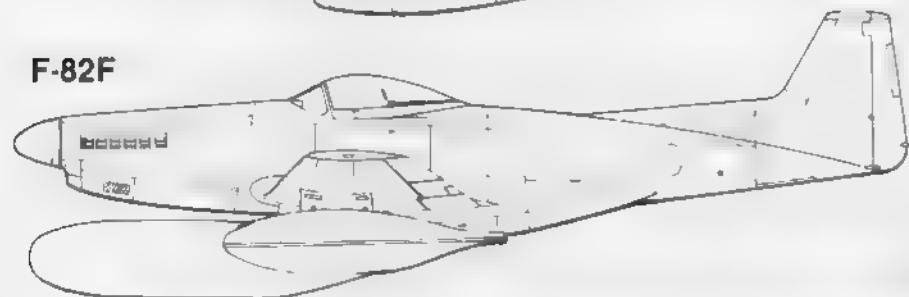
P-82B



F-82E



F-82F



One of the most famous F-82s, Betty Jo, an F-82B that set a distance record in 1947 by flying from Hawaii to New York non-stop — 5,000 miles! Note the extra fuel tanks behind each pilot in addition to the four underwing 300 gallon tanks. (USAF)

Ole 97 was the personal aircraft of Col. Cy Wilson, CO of the 27th FW. Note the twelve exhaust stacks found on all F-82Es. (McCreery)



A pair of Bergstrom AFB based F-82Es from the 27th FW, are seen in flight over Texas. Noses, wing tips and tail stripes are red. (Abjornson)





An all-black F-82F from the 318th F(AW)S over the Utah countryside. Note the new flame-dampening exhausts which were fitted to all night-fighter F-82s. (Dickman)

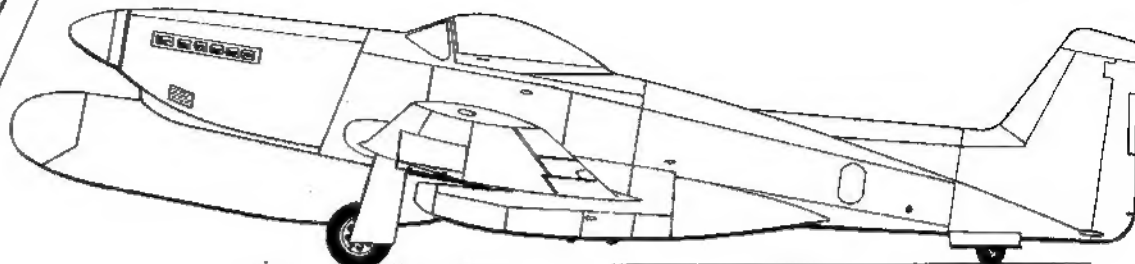
Flame Dampening Exhaust



A pair of 318th F(AW)S F-82Fs over Tacoma, Washington in 1949. The 318th was stationed at McChord AFB, Washington and flew F-82Fs until transitioning into F-94B Starfires in 1951. (Dickman)



F-82F Twin Mustang



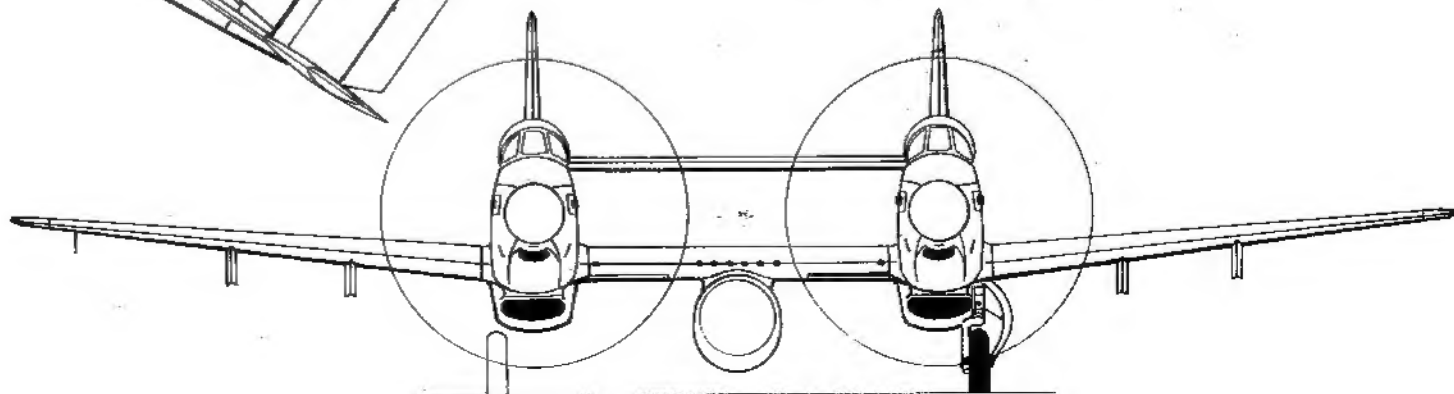
Specifications

POWERPLANT: Two Allison V-1710-143/145 12 cylinder, 1710 cubic inch inline engines rated at 1600hp on take-off or 2250hp in max War Emergency setting.

DIMENSIONS: Wingspan: 51'7"
Length: 39'2"
Height: 13'9½"
Take-off Weight: 21,810 lbs.

PERFORMANCE: Max Speed: 460mph at 21,000ft.
Combat Range: 2174 miles
Service Ceiling: 38,400ft.

ARMAMENT: 6x.50 calibre machine guns
400 rds per gun





Night Takeoff was an F-82F from the 319th FIS at Moses Lake AFB, Washington, in 1949. The blue, yellow, red stripes on the drop tanks would indicate a squadron CO's aircraft. (Kajor via Menard)

Our Lil' Lass, an F-82G from the 339th F(AW)S. Along with F-82s from the 4th and 68th F(AW)S, the 339th helped cover the evacuation of US citizens from Korea in the first days of the war. (Trexler via Olmsted)

DaQuake was the 68th F(AW)S CO's aircraft in 1950. 68th F(AW)S F-82Gs were used for night airbase defense in Korea until replaced by F-94Bs in 1951. (Kopitzki via Olmsted)



The Verna Q, P-51B, 43-6322,
Maj. Frank O'Connor, 356th FS,
354th FG. Olive Drab and
Neutral Gray.



Midnight Sinner, F-82G, 46-390,
4th F(AW)S, Naha AB, Okinawa,
Summer 1950. Overall Gloss
Black.



4th F(AW)S
Insignia



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